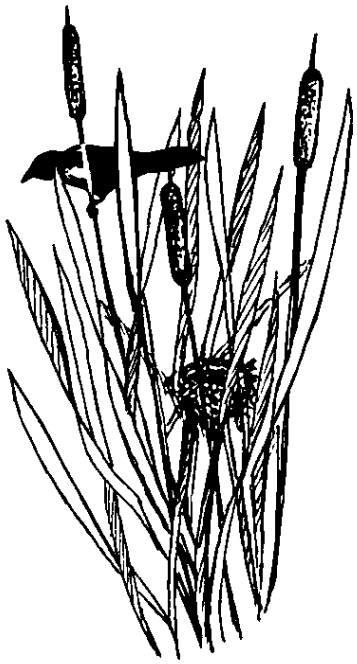
TRENDS IN IOWA WILDLIFE POPULATIONS AND HARVEST 2012



Iowa Department of Natural Resources
Chuck Gipp, Director
December 2013

TRENDS IN IOWA WILDLIFE POPULATIONS AND HARVEST 2012

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CONSERVATION & RECREATION DIVISION

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WHITE-TAILED DEER

Historical Perspective

White-tailed deer (*Odocoileus virginianus*) were reported to be quite abundant when European settlers arrived in Iowa in the early 1800's. Although the clearing and cultivating of land for agriculture may have initially improved the suitability of the landscape for deer, uncontrolled exploitation for food and hides rapidly reduced deer numbers. By 1880 deer were rarely sighted in much of the state and in 1898 the deer season was legally closed. By this time deer had been virtually eliminated from all parts of the state.

Re-establishment of deer into the state can be traced to escapes and releases from captive herds and translocation and natural immigration from deer herds in surrounding states. A conservative estimate of the population in 1936 placed statewide numbers at between 500 and 700 animals. This small herd grew steadily. By 1950 deer were reported in most counties and the statewide estimate topped 10,000. Concentrations in some areas were beginning to cause problems by damaging agricultural crops in addition to some complaints concerning deer/vehicle collisions. In response to these problems the first modern deer season was held in December of 1953 and 4,000 deer were killed. The harvest in 1996 exceeded 100,000 for the first time ever.

Although deer are frequently associated with forested areas, they are very adaptable and will utilize many different types of habitat as long as the area provides adequate cover. Examples of these types of areas include brushy draws and fence lines, marshes, and grassy areas like those provided by the federal Conservation Reserve Program (CRP). Standing corn also provides ideal habitat for part of the year since it provides cover, easy travel lanes, and food during portions of the growth cycle. Urban environments can also prove to be good habitat for deer, especially if there are green belts, parks or other natural spaces nearby.

Deer utilize almost all plants for food at one time or another during the year. Deer feeding habits can best be described as being widely selective as deer will sample many plants while feeding but often utilize a single, palatable source of food for the majority of their diet seasonally. Preferred foods change throughout the year in response to changing metabolic demands and forage availability.

The whitetail's ability to thrive in Iowa is likely the result of abundant, reliable food sources and a winter climate where snow depths rarely exceed 12" for a prolonged length of time. These factors combine to allow deer to come through the "winter bottleneck" in excellent condition. The excellent nutrition also enables deer to have high reproductive rates. Many does in Iowa give birth to a single fawn at one year of age and 2 fawns each subsequent year. Deer in the wild can maintain these high reproductive rates until they are past 10 years of age. Past research in Iowa has found that 8 to 12% of adult does have 3 fawns.

Another reason that deer do so well in Iowa is that they are very mobile. Although many deer never move far from the area where they were born, a significant number (10-20% on average) leave and travel to new areas before establishing a core area. These core areas

may change seasonally with deer shifting between wintering areas and fawning areas. These movements allow deer to fill voids left open due to deaths and changing habitat. Thus deer easily pioneer into new areas when habitat is suitable. The highest rates of movement occur during 2 periods of the year. The first is in the spring when does move to their fawning areas. Many of the previous year's fawns are forced to find areas of their own at this time. The second period is in the fall during the breeding season. The breeding season or rut begins in mid-October and runs through mid-January, although the peak of activity occurs in mid-November.

Careful management of deer populations by man has also played an important role in allowing deer numbers to return to the levels enjoyed today. Management consists primarily of regulating the doe harvest since hunting provides the major source of mortality for deer in modern day Iowa. Unchecked, Iowa's deer herd could grow at a rate of 20% to 40% each year. At this rate, deer numbers would double in as few as 3 years. With Iowa's agricultural crops providing abundant food, densities could exceed 100 or more deer per square mile in year-round deer habitat before natural regulatory mechanisms would begin to affect deer health and slow the rate of growth. Deer numbers this high would cause severe economic hardship to Iowa's landowners as well as alter the natural vegetative community. Maintaining a deer population in balance with the differing and often competing wants and needs of the people in the state is a difficult task and hunting is the only viable management option to achieve this goal.

2012-2013 Hunting Season Results

This hunting season represented the seventh year of mandatory harvest reporting in Iowa. The reported kill for the 2012/13 season was 115,608 (Table 1.1) which is about 4.8% lower than in 2011 (Table 1.2). Both of these figures represent the known minimum harvest for 2012 and 2011. The hunting season of 2005 represents the record harvest year for Iowa under the former harvest estimation system. The considerations of utilizing a new harvest reporting system and its compatibility with the former system were discussed in detail in the 2006/07 annual deer report.

In 2005 and prior years, a total harvest estimate was calculated and reported based on a postseason postcard survey, this survey was felt to overestimate the actual harvest. Caution should be used when comparing the reported harvest and license success rates for this year (2012) to the harvest estimates and hunter success rates from years prior to 2006 since the techniques used to record/estimate the harvest are very different (please see the 2006 logbook report).

Antlerless deer represented 59% of the 2012 harvest and about 48% of the total harvest was comprised of does (Table 1.3). The proportions represented a 3% decrease for antlerless deer and a 4% decrease in does when compared to the 2011 season. Eight percent of the reported doe kill occurred during the January antlerless season. The reported number of antlered deer in the harvest was 4% higher than in 2011 and represented 41% of the 2012 harvest (shed-antlered bucks are included in this statistic). There were 1,301 shed-antlered bucks reported which represented 2.2% of the total buck harvest (includes button bucks) or 2.7% of the "antlered" buck harvest (since shed-antlered bucks, by definition, carried antlers at some point during the deer season).

Information (registration numbers, age and sex, county of kill, etc.) was collected from about 1,550 deer checked in the field and at lockers during chronic wasting disease (CWD) surveillance to determine what proportion of successful hunters reported their deer. Examination of this data indicated that 84.4% of the harvested deer that were encountered in the field were reported. This was a decrease of 3.8% from the reporting rate observed during the 2011 seasons.

There is likely a bias in the above rate since all of these situations require the hunter to take the deer to a locker or have contact with a DNR official or someone in an official capacity. People in these situations may be more likely to report their deer than would someone who hadn't talked with a DNR official or someone who doesn't take their deer to a locker. Recent deer hunter surveys indicate that about 1/3 of Iowa's deer hunters completely process their deer themselves. However, gathering data from these individuals is problematic since there is no way to gather the data without someone from, or working with, the DNR contacting them. In final analyses, making some allowance for the potential bias, it was estimated that about 80.0% of the deer harvested in 2012/13 were properly reported.

Figure 1.1 compares the harvest reporting system (a known minimum harvest level) with the post-season postcard survey harvest estimates conducted prior to the 2006 hunting season. The figure displays what past harvests might have looked like using the calculated relationship between the two systems (the "actual" harvest levels).

Utilizing the reporting information, an estimate of the number of antlered bucks, does, and button bucks killed in 2012 can be made. In Figure 1.2, estimates from 1985-2005 have been constructed on the assumption that the relationship between the reported harvest and the post-season mail survey were consistent through time and that 90% of the harvest was reported (2006 compliance data). Harvest estimates from 2006-2012 were calculated from annual harvest reporting rates as described previously. The 2012 estimate is based on an estimated 80.0% reporting rate as discussed earlier. The total corrected harvest estimate for 2012 is 144,510 which represents no change from the similar estimate for the 2011 season.

There were 14,476 fewer deer licenses issued for the 2012/13 deer season compared to 2011 (Table 1.4). The difference was comprised of 20,556 fewer antlerless licenses and 6,080 more any-deer licenses. From a customer perspective, the number of paid licenses decreased by 13,563 and landowner/tenant licenses decreased by 913. Antlerless licenses made up about 38% of the deer licenses issued during the 2012/13 deer season.

The general season framework did not change from 2011 (Table 1.5), however, the November Antlerless was discontinued. This was the 17th year for the special January Antlerless season but the season was shortened by one week and discontinued in 4 northeastern counties. Centerfire rifles could be used during the entire January Antlerless season in the 21 southernmost counties (Figure 1.3). Landowners could get 1 free either-sex license and 2 free antlerless licenses in addition to the regular tags a deer hunter could legally obtain. Seventy-two counties had additional antlerless licenses available. Twenty-seven counties in northern and central Iowa had no antlerless quota (Figure 1.3). Hunters in all seasons could obtain an unlimited number of antlerless licenses but

were limited to the purchase of one antlerless license prior to 15 September. Antlerless licenses were restricted to a specific county and season.

About 2,300 deer were taken during special management hunts in urban areas and in state and county parks (Table 1.6). Approximately 2,300 deer were reported by hunters using special antlerless depredation licenses that were allotted to landowners who were experiencing crop damage problems. Authorization numbers are issued to the landowner who can then distribute them to hunters who use them to purchase a depredation license. The harvests represent a decrease for the special management (12%) and depredation hunts (6%).

Four of the top 10 counties for total kill were in the northeast portion of the state in 2012 with the remainder being in southern and central Iowa. Clayton was again the top county for total reported kill with 4,622 deer or about 5.9 deer harvested per square mile (Tables 1.7 & 1.3). Van Buren County had the highest kill density at 7.0 deer harvested per square mile. Grundy County had the lowest kill with a reported 144 deer or about 0.29 deer per square mile. Calhoun County had the lowest harvest density at 0.25 deer per square mile.

Tissue samples were gathered and tested from 4,401 wild deer for chronic wasting disease (CWD) surveillance purposes. The majority of the samples were obtained during the shotgun seasons with concentrated efforts in northeastern Iowa as the disease occurs in neighboring wild deer populations in Illinois and Wisconsin. Two southern Iowa counties (Appanoose & Wayne) also received concentrated sampling efforts in response to CWD being found in wild deer in Macon County, Missouri in 2012 (and again in 2013). CWD was found in captive whitetails in Linn and Macon counties, Missouri in 2010 and 2011 respectively. Concentrated surveillance efforts were also in place in Howard, Mitchell, and Winneshiek counties in 2012 in response to one wild whitetail testing positive in Olmstead County, Minnesota near Pine Island in 2011. Lastly, surveillance was increased in the areas of Davis, Cerro Gordo, and Pottawattamie counties in response to CWD being found in captive whitetails in 1 facility in each of these counties in 2012. The source of these infections appears to be the Cerro Gordo County facility. No CWD was detected in any of the 2012/13 wild whitetail tissue samples submitted to the Texas Veterinary Medical Diagnostic Lab at Texas A&M University. Tissue samples were also collected from 340 captive deer and elk in 2012/13 (does not include the Davis County facility) and CWD was not detected in any of these samples.

The captive shooting facility in Davis County was depopulated in January 2013 and 2 more animals tested positive for CWD (out of 170 samples submitted). This facility, as well as the facilities in Cerro Gordo and Pottawattamie counties, is currently under quarantine. To date, 13 captive deer have tested positive for CWD in Iowa (3 in Davis, 1 in Cerro Gordo, and 9 in Pottawattamie). Since 2003, Iowa has tested 46,958 tissue samples from wild deer and no CWD has been detected to date.

Shotgun Season

The reported kill during the shotgun seasons was about 5% lower than the reported harvest for 2011 (Table 1.1). Looking at just the data from the mandatory reporting system (2006-2012), the shotgun harvest has declined for the last 6 years. Overall, hunting conditions were good with an early crop harvest and reasonable weather during the seasons. The Shotgun 1 season was typified by mild temperatures

statewide and was precipitation free except for light, localized rain showers on the opening day; mostly in east-central Iowa. The Shotgun 2 season was also mild overall with light snow flurries (north) or rain showers (south) on the 1st Sunday of the hunt and moderate rain (with some snow north) on the 2nd Saturday of the season. Fewer deer were reported during both seasons compared to 2011.

Antlered bucks made up about 41% of the total kill, while does made up 48% of the kill. Button bucks made up about 11% of the reported harvest and shed-antlered bucks accounted for less than 1%. However, the number of shed-antlered bucks harvested during the shotgun seasons (188 reported) represented 14% of the total number of shed-antlered bucks reported during the 2012/13 season.

There were 76,359 paid resident licenses sold for the first season and 30,212 deer were reported killed, while 63,531 paid resident licenses resulted in 18,898 deer reported during the second season. The reported success rate for first season hunters was 40% while second season license holders reported 30% success.

Antlered bucks made up a slightly higher proportion of the first season harvest when compared to does at 46% and 44%, respectively. During the second season, does made up the majority of the harvest at 52%. Antlerless deer made up 54% of the reported kill during the first season and 63% of the kill during the second season.

The reported deer kill (Figure 1.4) was highest in eastern and southern Iowa during both seasons as would be expected due to deer densities and hunting opportunities.

Does made up less than 50% of the kill in most counties during the first season (Figure 1.5). However, does made up over 50% of the harvest in 48 counties during the second season (62 counties in 2011).

Assuming that any biases in reporting are consistent between counties (which the data suggests), some generalizations can be made regarding harvest distribution (Tables 1.7 and 1.3). Current regulations continue to be effective in allowing more deer to be taken in southern and eastern Iowa (Figure 1.6). The deer seasons and antlerless quota allocations for 2012 also maintained higher levels of doe harvest in the targeted areas of the state (Figure 1.7) as the doe harvest approaches or is over 50% of the harvest in the vast majority of these counties.

January Antlerless Season

For 2012/13 license year, there were 38 counties open for the January antlerless season (4 fewer than in 2011/12, Figure 1.3). All licenses issued for this season were for antlerless deer only. The season was the same length for all counties (11-20 January) but centerfire rifles could be used during the entire season in designated southern counties. A total of 19,923 licenses were issued, which is 23% less than the previous year with 28% of them being reported as filled (Table 1.1). Licenses for this season did not go on sale until 15 December.

About 5,550 antlerless deer were reported during the season (does not include harvest from depredation licenses) which was a 29% decrease from the reported kill in January 2012. The reported kill during this season accounted for 5.1% of the statewide total kill and does harvested during the January antlerless season represented about 8% of the total doe harvest.

However, the impact in many counties was much greater. The harvest represented 24% of the reported county kill and 36% of the doe kill in Taylor County

for example. In most southern Iowa counties the harvest represented from 15-30% of the total doe harvest for the county (Figure 1.8). Hunters reported that 76% of the deer taken were does and about 16% were buck fawns.

Shed-antlered bucks made up 7.9% of the reported harvest for the January antlerless season (469 animals). The season accounted for 36% of the total number of shed-antlered bucks reported during the 2012/13 season.

Archery

The reported harvest for 2012 was about 23,150 deer which was 1% less than the reported harvest in 2011 (Table 1.1). The number of licenses issued increased by 2% from the previous year to 94,540. Hunters reported that 29% of the antlerless licenses were used to tag a deer and the overall reported success rate was 25%, the same as in 2011.

Sixty-one percent of the deer taken by archers were male and 54% were antlered bucks (includes shed-antlered bucks, Table 1.8). During the archery season, 104 shed-antlered bucks were reported which represented 8% of the total number of shed-antlered bucks reported in 2012/13.

Muzzleloader

The reported kill during the early muzzleloader season was 3,896 (a 12% decrease from 2011) and license sales were 1% lower than in 2011 (Table 1.1). About 32% of the licenses purchased were reported to have been used to tag a deer. Bucks made up 55% of the kill, with antlered bucks making up about 46% of the total (Table 1.9).

The reported kill during the late muzzleloader season was 10,823 (Table 1.1) which represented an increase of 24% from the 2011 reported harvest. Fifty-two percent of the deer reported were does and 37% of the deer killed during the late muzzleloader season were antlered bucks (includes shed-antlered bucks). During the late muzzleloader season, 496 shed-antlered bucks were reported in the kill which represents about 4% of the harvest for the season and about 38% of the total number of shed-antlered bucks reported in 2012/13.

Nonresidents

Of the 5,975 any-deer licenses issued, 2,892 or 48% went to hunters during the shotgun seasons, 2,094 or 35% to bowhunters, 982 or 17% to late season muzzleloader hunters, and 7 were drawn by disabled nonresidents. All of these nonresident hunters also received an antlerless-only license (5,975 licenses) as part of their any-deer license package.

The reported success rates for the any-deer licenses were 51% for the shotgun licenses, 38% for the late muzzleloader licenses, and 40% for the archery licenses. Only 4% of the deer tagged by nonresidents with any-deer licenses were does (Iowa residents reported 26% does on any-deer licenses). The reported success rates for the antlerless-only licenses held by these hunters were 34% for the shotgun licenses, 27% for the late muzzleloader licenses, and 17% for the archery licenses.

An additional 2,741 Optional Antlerless-only licenses were issued to nonresidents. Of these, 2,481 went to shotgun hunters, 198 went to hunters participating in the holiday season (12/24 – 1/2/13), and 62 licenses were purchased for the January Antlerless season. The reported success rates for the optional antlerless licenses were 36% for the shotgun seasons, 37% for the holiday antlerless season, and 44% during the January season.

Collectively, the success rate for all the nonresident antlerless licenses issued during the shotgun seasons was 35%.

In total, nonresidents reported harvesting 2,785 antlered bucks, 2,270 does, and 307 button bucks. The reported success rate for all licenses was 36% and the overall harvest consisted of 42% does.

Special Youth & Disabled Hunter Season

The total number of licenses issued (10,619) for this special season was 11% higher than in 2011 (Table 1.1). About 355 of the licenses were issued to disabled hunters which was a 27% increase from 2011. Youth season hunters who did not take a deer during the Youth deer hunting season were able to use the deer hunting license and unused tag during the early or late muzzleloader seasons or one of the two shotgun seasons. Also, an any-deer license purchased by either a Youth or Disabled season hunter did not count towards the maximum number of any-deer licenses allowed in Iowa.

The reported success rate was 37% with 3,908 deer registered with the harvest reporting system (a 16% increase from 2011). About 47% of the deer reported were antlerless and the reported harvest consisted of 38% does.

Special Deer Management Zones

Special management hunts were conducted at 51 locations in 2012/13 and about 2,325 deer were reported (Table 1.6). These hunts are designed to meet the management needs of areas such as state and county parks and urban areas that are not suitable to be opened to general regulations. Almost all deer taken were antlerless and deer tagged did not count against a hunter's regular license purchases or bag limit. Most hunts were very successful in removing deer in these problem areas.

An additional 4,369 licenses and permits were issued to hunters/landowners in depredation situations which resulted in the reported harvest of 2,305 deer. This is a 6% decrease in the depredation harvest from 2011/12.

Population Trend Surveys

Three techniques are currently used to monitor trends in Iowa deer populations. These are 1) spotlight surveys conducted in April, 2) a record of the number of deer killed on Iowa's rural highways throughout the year coupled with annual highway use estimates, and 3) the bowhunter observation survey conducted during October–November. All of these surveys correlate well with the corrected harvest estimates and appear to provide reliable long-term trend indices. However, none of these surveys can be considered absolutely reliable indicators of annual changes in the population because of the high variability in the survey conditions, deer behavior, and habitat conditions.

Deer populations for the state as a whole have declined after displaying strong growth for over a decade (Figure 1.9). This is due to the dramatically increased harvest pressure that has been applied to the female segment of the herds beginning with the 2003 hunting season. The goal is to return deer population levels to those that existed in the mid-to-late 1990s. This goal has been achieved on a statewide basis and for the majority of Iowa's counties.

The winter aerial deer trend surveys were discontinued in 2013. Although utilized for a period of 30 years in Iowa, these trend surveys overall had the lowest correlation values in the model analyses. With the adoption of new trend surveys in Iowa over the last several years, it was

decided that the aerial trend surveys should be dropped from Iowa's annual survey efforts.

The number of deer killed on rural highways decreased by about 3% in 2012. The estimated number of vehicle miles driven increased in 2012 when compared to 2011 and the resulting adjusted road kill (kills per billion miles – KBM) also decreased by about 3% overall (Table 1.10). The trend in road kills (KBM) has been a declining one as the deer population decreases, but the relationship between these two variables has never been directly linear. The KBM rates over the last 5 years compare well to estimates from the early 1990s.

The new spotlight routes were initiated in 2006 and replaced the old spotlight routes in 2012 as they displayed less variability overall. The new routes consist of 199 transects distributed among all counties for a total survey mileage of about 4,750 miles; more than double the transect length of the old spotlight routes. The new spotlight survey transects are also set up to be more representative of the available rural habitats within a county. The average number of deer observed per 25 miles increased by about 40% on the new routes in 2013 (Table 1.10).

The bowhunter observation data, which began to be collected during the 2004 season, also were utilized beginning with the 2010 analyses. This survey represents about 100,000 hours of observation distributed throughout the state and is conducted voluntarily by Iowa archers. The tactics used during this season (stand hunting) make it useful for gathering observational data.

Utilizing the mathematical relationships described earlier to plot estimated harvests and harvest structures from 2006-2013, the data was utilized in the population model and the resulting "best fit" simulation indicates a declining deer population statewide (Figure 1.9). The model suggests that about an 11% decline in the population occurred as a result of the 2012/13 harvests in conjunction with other mortality factors. In the statewide analyses, the model has its best correlations with components of the road kill survey.

The data indicates that, statewide, the deer herd has been declining since 2006. Approximately 80% of Iowa's counties have reached the established goal of returning to the mid-to-late 1990 population levels.

Outlook for 2013

After 10 years of increased doe harvest, hunters are seeing reduced deer numbers in most areas of the state. About 80% of Iowa's counties have reached or exceeded (fallen below) their goal. The goal is a stable population at a level comparable to the mid-to-late 1990s. A population at this level should sustain an estimated annual harvest of 100,000 to 120,000 deer.

Thirty-three counties, primarily in north-central and northwestern Iowa, are currently at or slightly below their established goal. Antlerless quotas for these counties were reduced prior to the 2010 season (from 2006-10) and current harvest levels are keeping numbers fairly stable. However, adjustments may be needed in the future to further stabilize or slightly increase populations in some counties that the data indicates are below goal. Current data indicate that 48 additional counties in eastern, central, and southern portions of the state are at goal.

Some county antlerless quota reductions were adopted for the 2013 season in 6 southwestern counties. However, hunters will still need to be judicious in their use of antlerless licenses in these counties as well

as others or deer numbers may go below the established goal. Deer numbers are still above goal in some counties, mainly in central and south-central Iowa.

As deer numbers continue to decline, hunters will need to become more cautious in the number of does they harvest. Hunters can drive deer numbers lower than desired in localized areas even in those counties where deer numbers remain above the goal overall. Conversely, there are areas in some counties that are at goal where deer numbers are still overabundant. Hunters need to work with landowners to find a desirable level of harvest.

The 2012/13 winter started off mild but late winter/early spring snows resulted in a winter with above average snowfall. Iowa's spring was one of the wettest and coolest on record which prevented the planting of some crop fields throughout the state. The early summer weeks were hot and dry but conditions have moderated somewhat with most areas receiving some precipitation along with milder temperatures.

Iowa experienced its largest documented outbreak of epizootic hemorrhagic disease (EHD) in 2012. The spring and summer of 2012 was abnormally hot and dry. Sick and dying deer began to be reported in early August and reports continued on into November. Lab confirmations were received on several tissue samples submitted to the Southeastern Cooperative Wildlife Disease Study laboratory from deer scattered throughout the outbreak area. EHD virus 2 and 6 were isolated from the tissues with the EHDV6 animals coming from central Iowa (EHDV2 was isolated from this region also). In total, there were 2,974 suspected hemorrhagic disease mortalities reported to DNR staff with the outbreak area confined mainly to southern and central Iowa and the Loess Hills counties of western Iowa (Figure 1.10). Reported mortalities ranged from 1 to 570 deer on a county basis with reports being received from 63 counties. These reports represent only a proportion of the mortality that actually occurred during the outbreak.

Figure 1.1. A comparison of the post-season harvest estimates from 1985-2005 (the top line) with the reported harvests from 2006-12 (the bottom line). The dotted line would be the "actual" harvest based on annual reporting compliance estimates (2006-12) and on 2006 reporting rates (90%) for the years prior to 2006 (the first year of mandatory reporting).

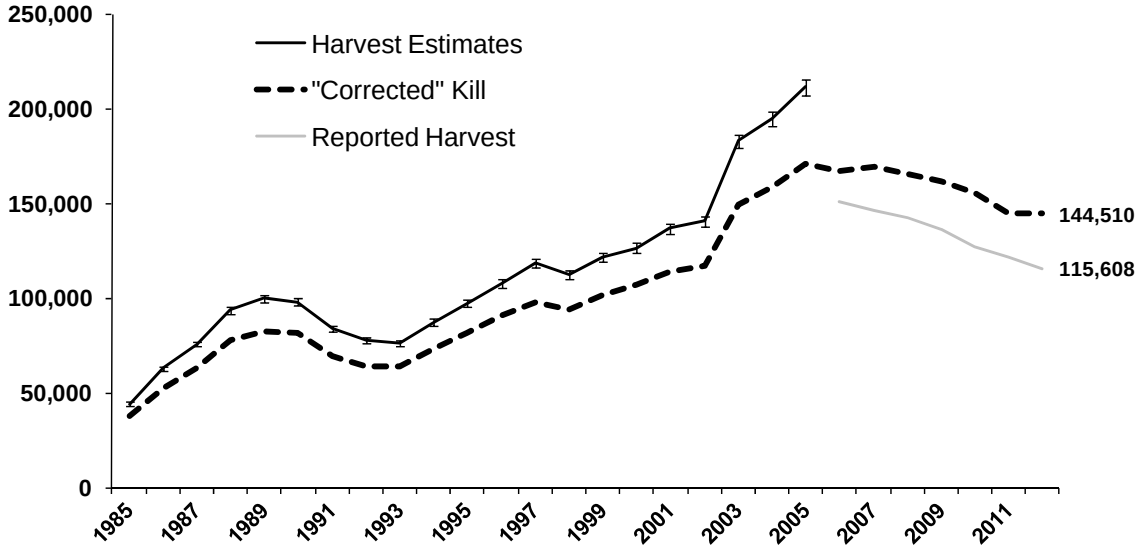


Figure 1.2. An estimate of the number of antlered bucks, does, and button bucks killed in 2012 if 80.0% of the actual harvest were reported. The estimates from 1985 -2005 assume the relationship between the reported harvest and the post-season mail survey would have been consistent in the past and were constructed using the 90% reporting rate estimate that was calculated for the 2006 hunting season (the first year of mandatory reporting).

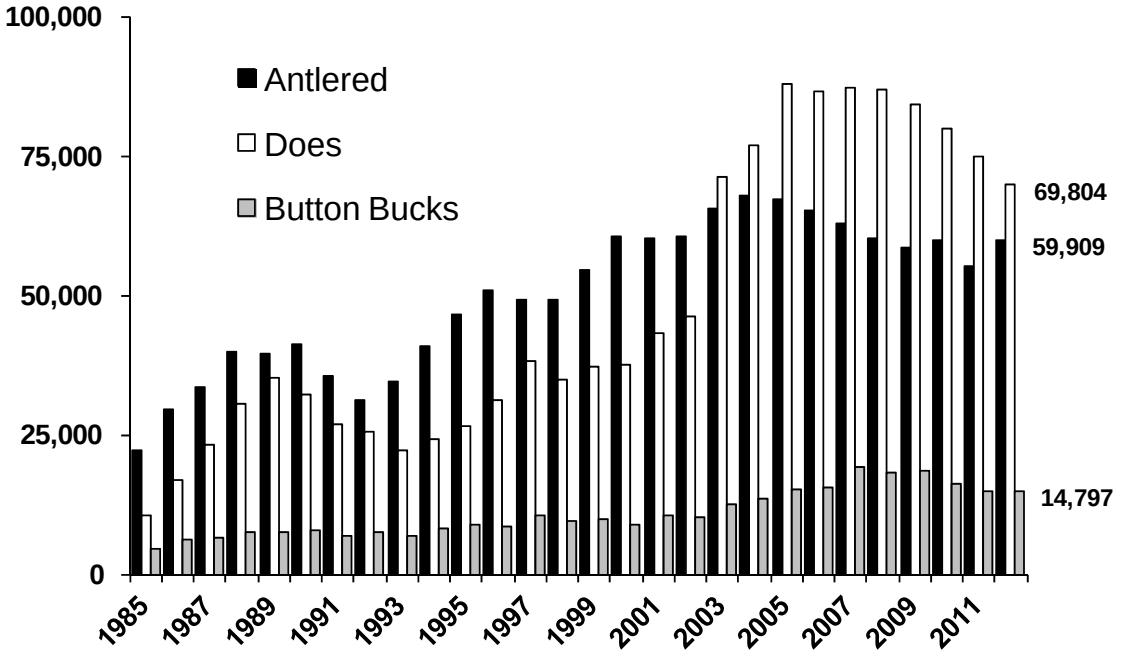


Figure 1.3. The number of paid resident antlerless-only license available in 2012/13 in each county. The shaded counties were open for the January antlerless-only season and centerfire rifles were legal during the season in the dark shaded counties.

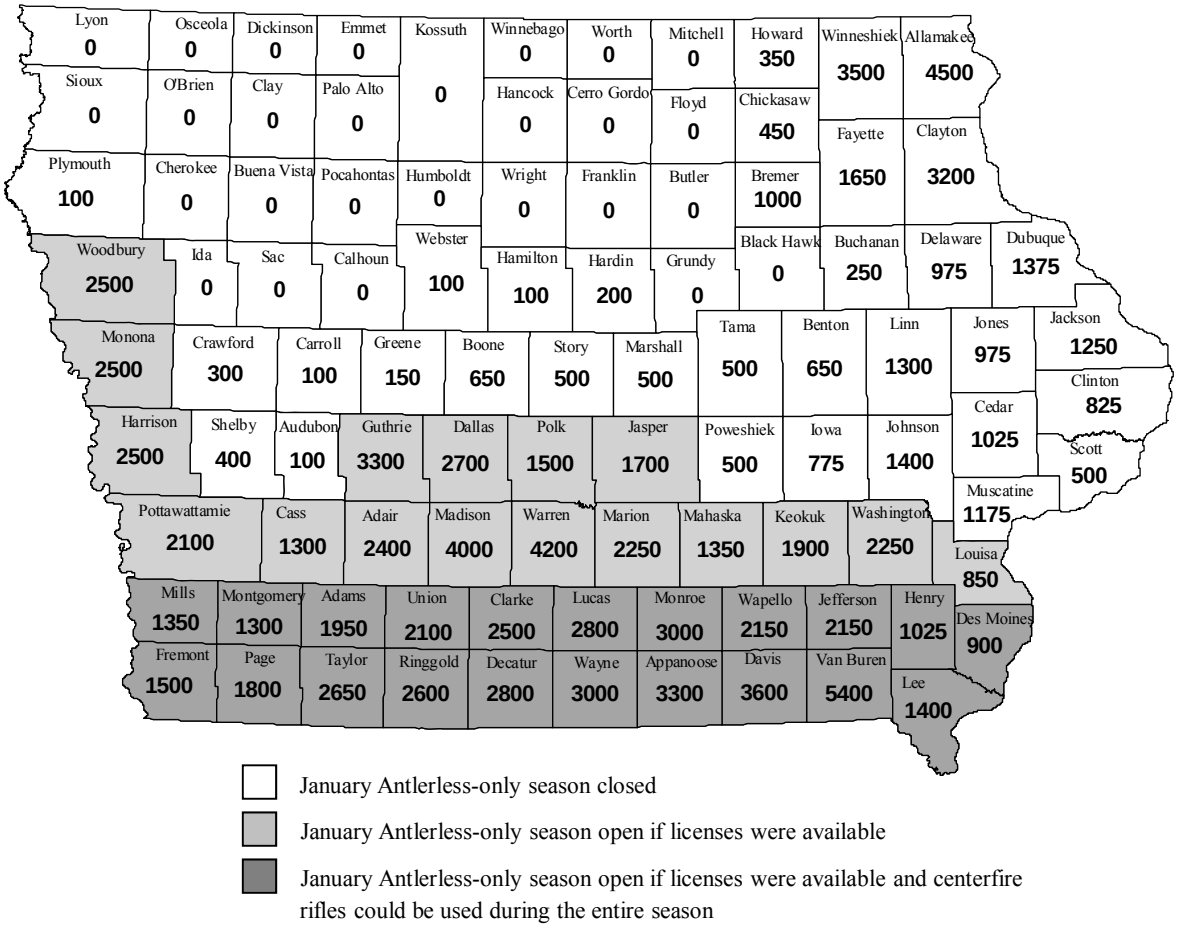
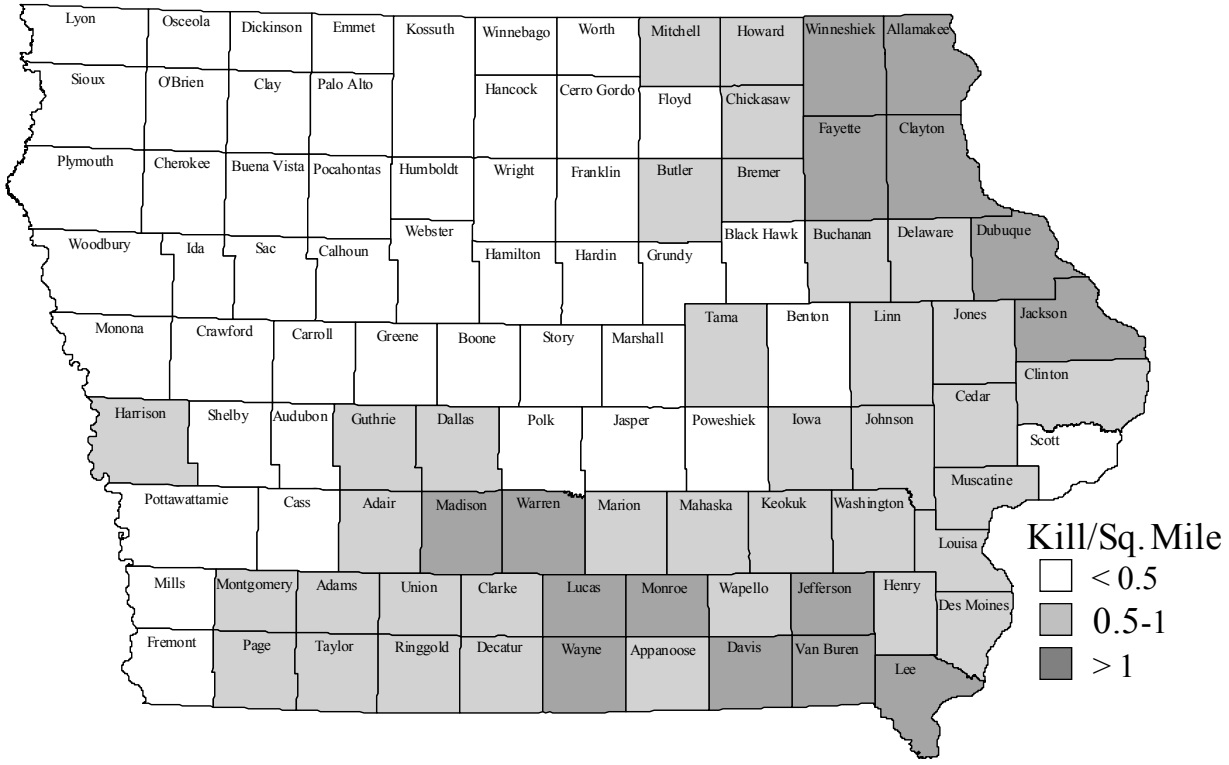
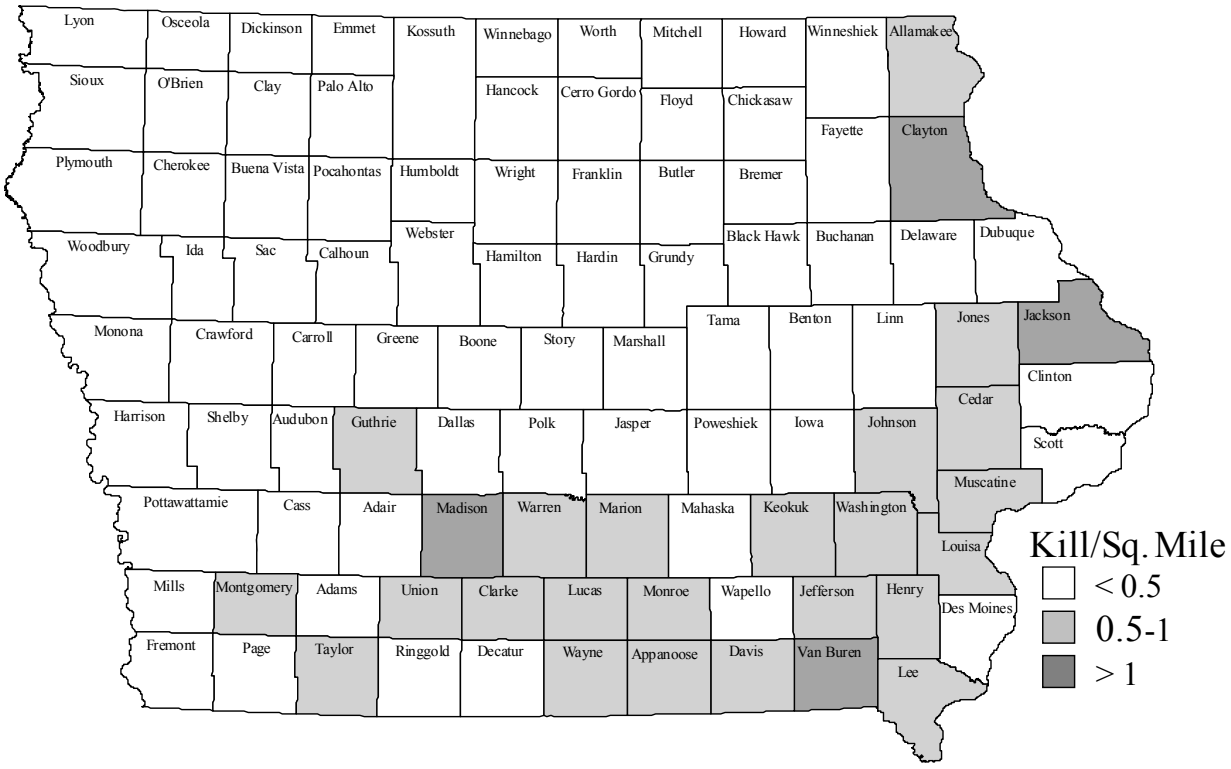


Figure 1.4. The average number of deer killed per square mile in each county based upon the reported harvest during the 2012 shotgun seasons. The kill by hunters with free landowner/tenant licenses was not included since their licenses were valid for both seasons.

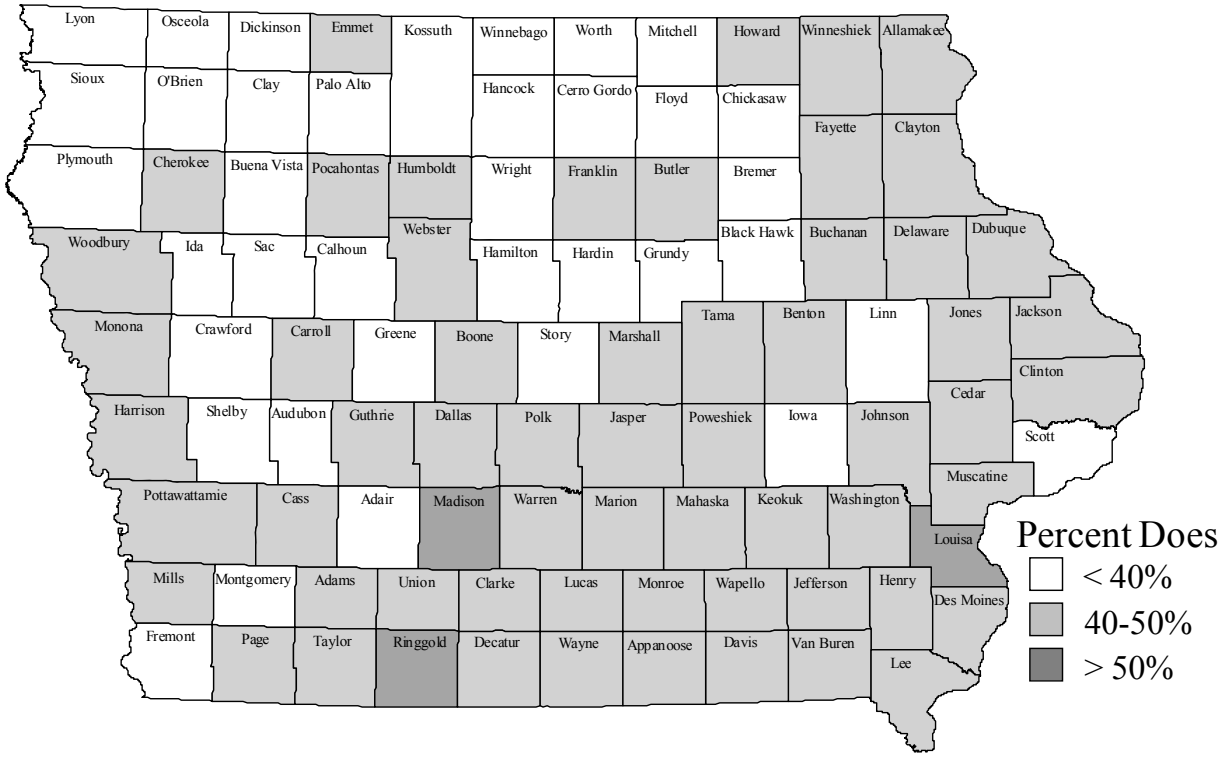


Season 1

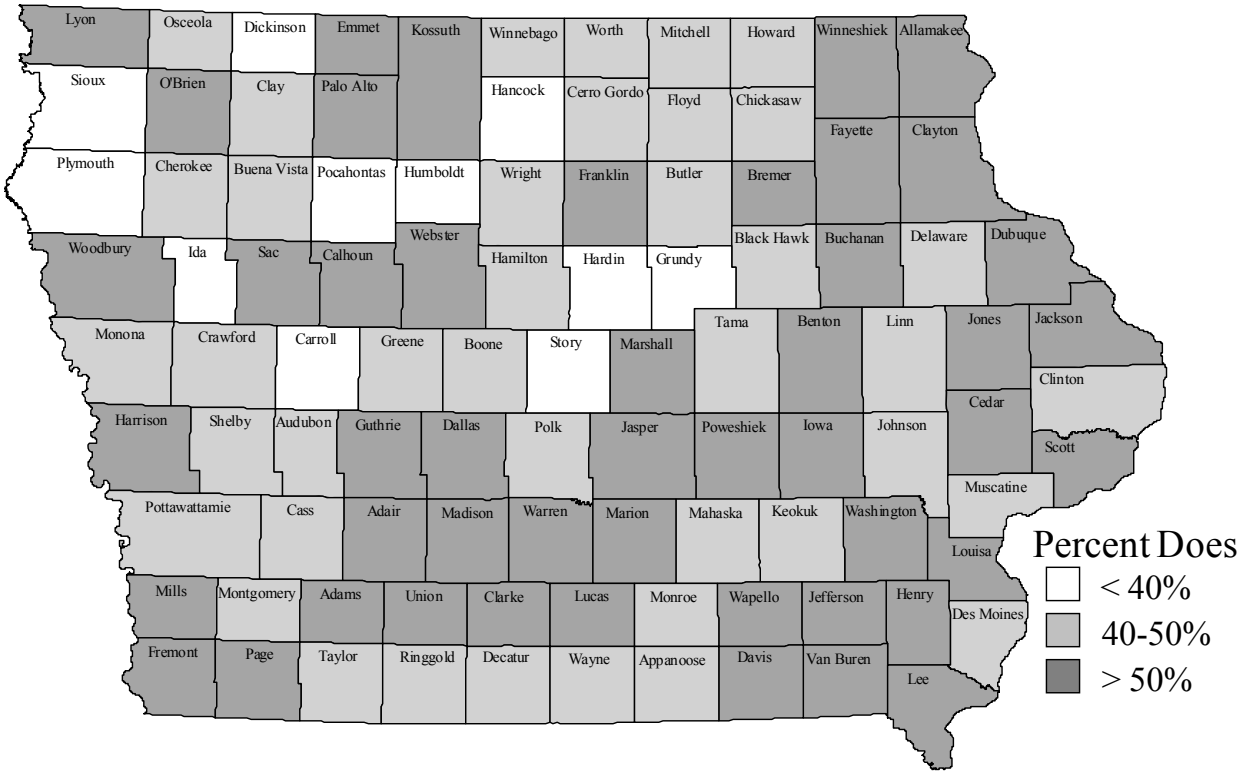


Season 2

Figure 1.5. The proportion of the reported harvest by hunters with paid licenses that were does during the 2012 shotgun seasons. The kill by hunters with free landowner/tenant licenses are not included since their licenses are valid for both seasons.



Season 1



Season 2

Figure 1.6. The average number of deer killed per square mile in each county during the 2012/13 deer season using the reported harvest.

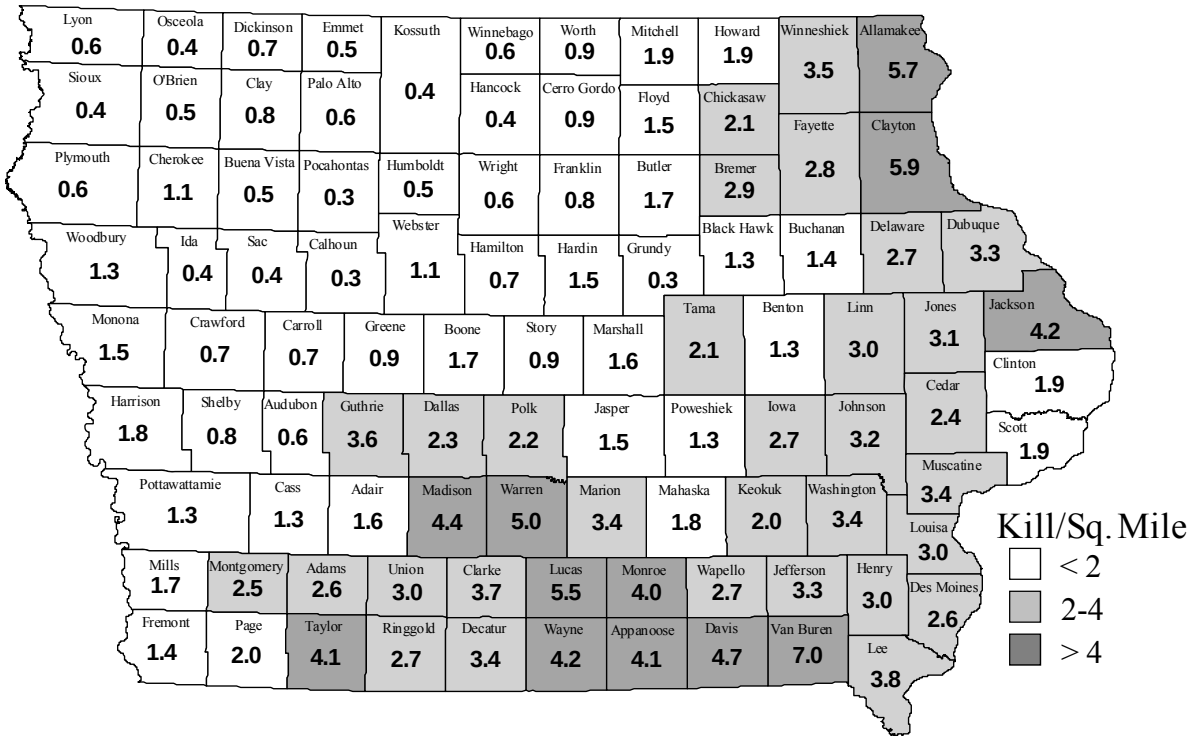


Figure 1.7. The proportion of the reported harvest that were does in each county during the 2012/13 deer season.

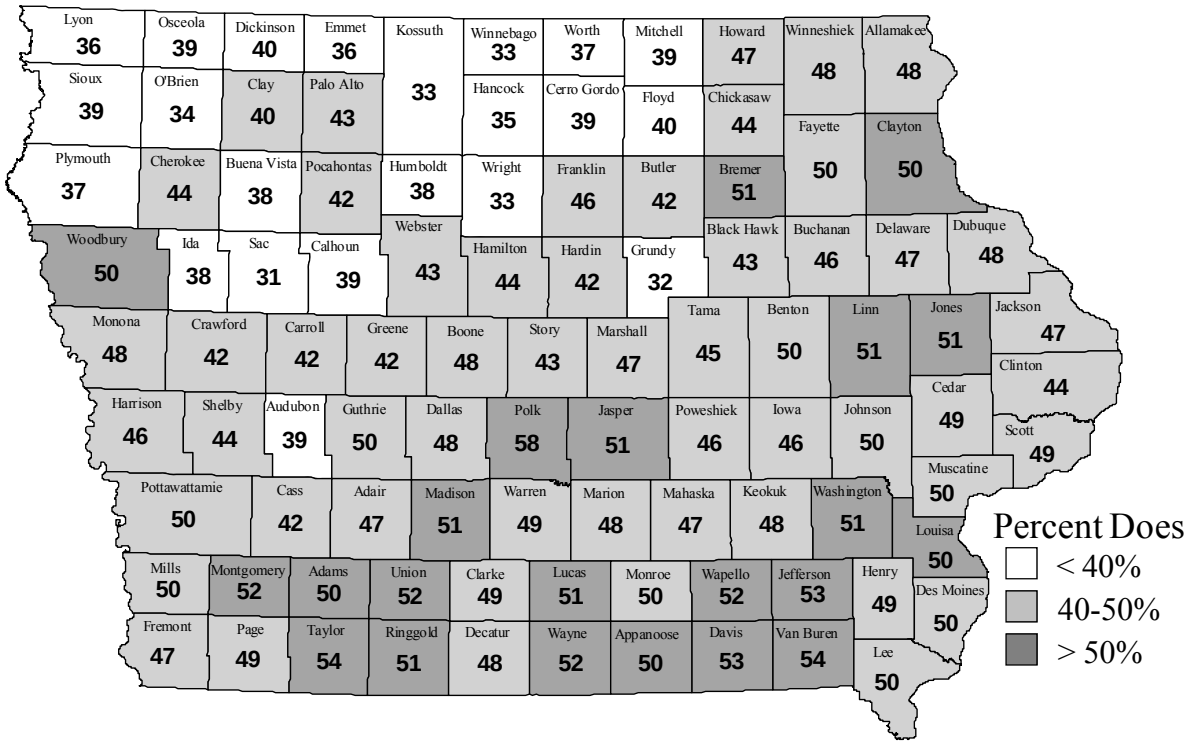


Figure 1.8. The proportion of the total reported doe harvest in each county that were killed during the 2013 January Antlerless deer season.

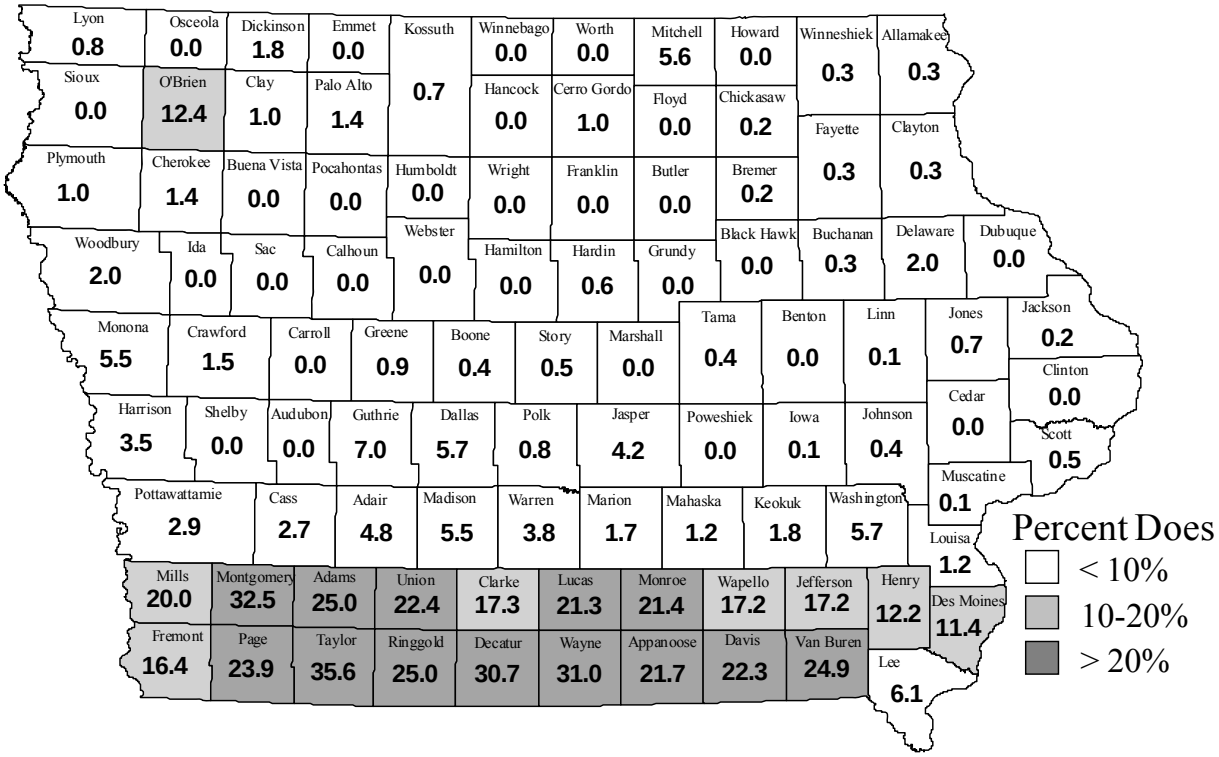


Figure 1.9. A comparison of the results from the statewide population simulation with deer population trend surveys. This simulation uses the 2012 harvest from the reporting system and a reporting rate of 80.0%.

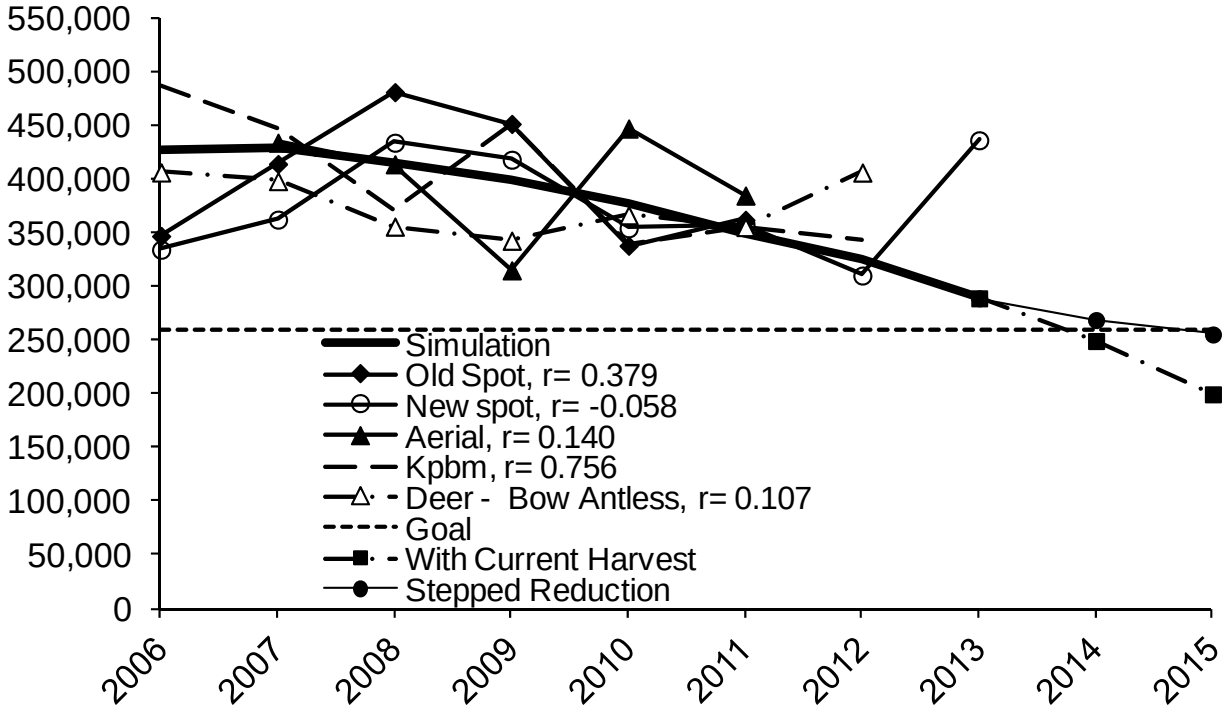


Figure 1.10. The number of deer mortalities reported in each county to DNR staff during the 2012 hemorrhagic disease outbreak.

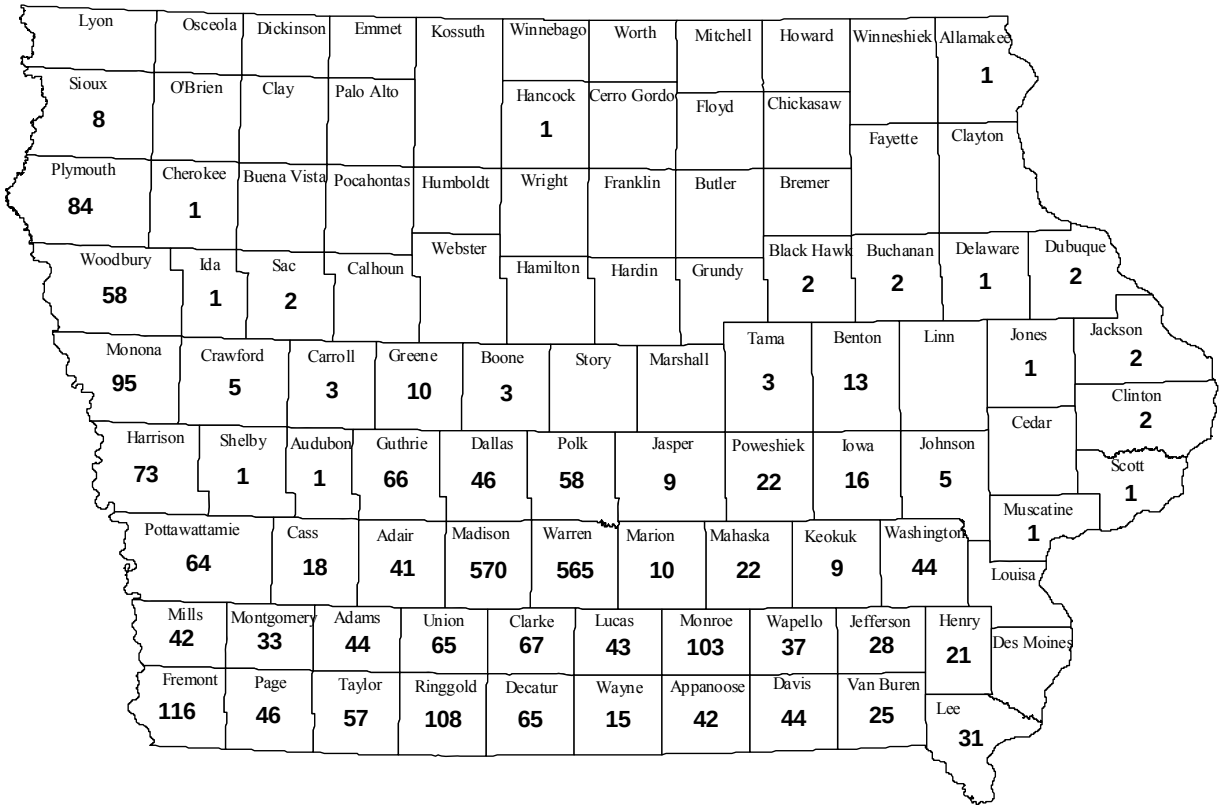


Table 1.1 A summary of the number of licenses issued, the number of deer harvested, and success rates for the 2012-2013 season.

Season		License Type	Licenses Issued		Number of Hunters [c]	Harvest [d]		Success Rate [e]
REGULAR GUN								
Season 1	Paid	Either-sex	57,718		57,718	21,833		38%
		Antlerless	18,641		11,783	8,379		45%
Season 2		Either-sex	45,948		45,948	12,271		27%
		Antlerless	17,583		10,805	6,627		38%
	Nonresident	Both	8,265		5,373	3,371		41%
		Total	148,155	(-3%)[a]	131,627	52,481	(-7%)	35%
Season 1 &	Landowner	Either-sex	24,494		24,494	5,702		23%
		Antlerless	18,053		15,306	5,229		29%
		Total	42,547	(+1%)	39,800	10,931	(-1%)	26%
GUN SEASON TOTAL			**190,702**	**(-2%)**	**171,427**	**63,412**	**(-5%)**	**33%**
MUZZLELOADER								
Early	Paid	Either-sex	7,495		7,495	2,434		32%
		Antlerless	1,641		1,239	699		43%
	Landowner	Both	3,199		2,797	763		24%
		Total	12,335	(-1%)	11,531	3,896	(-12%)	32%
Late	Paid	Either-sex	20,403		20,403	5,115		25%
		Antlerless	12,482		8,592	3,878		31%
	Landowner	Both	5,646		4,901	1,186		21%
	Nonresident	Both	1,965		983	644		33%
		Total	40,496	(+1%)	34,879	10,823	(+24%)	27%
MUZZLELOADER TOTAL			**52,831**	**(+1%)**	**46,410**	**14,719**	**(+12%)**	**28%**
JANUARY ANTLERLESS SEASON								
	Paid	Antlerless	13,992		8,831	4,677		33%
	Landowner	Antlerless	5,931		5,478	863		15%
		Total	**19,923**	**(-23%)**	**14,309**	**5,540**	**(-29%)**	**28%**
YOUTH	Paid	Both	10,084		9,592	3,720		37%
	Landowner	Both	180		162	52		29%
	Disabled	Both	355		280	136		38%
		Total	**10,619**	**(+11%)**	**10,034**	**3,908**	**(+16%)**	**37%**
ARCHERY	Paid	Either-sex	54,981		54,981	12,103		22%
		Antlerless	25,839		17,274	7,387		29%
	Landowner	Both	9,532		7,250	2,491		26%
	Nonresident	Both	4,188		2,094	1,183		28%
		Total	**94,540**	**(+2%)**	**81,599**	**23,164**	**(-1%)**	**25%**
TOTAL [b]			**378,454**	**(-4%)**	**327,870**	**115,608**	**(-5%)**	

[a] - the numbers in parentheses are the percent change from 2011-2012, NC = < 0.5%

[b] - total include licenses and kill from hunts in special deer management zones and depredation licenses

[c] - number of individuals with licenses, not comparable to estimates prior to 2006 hunting season

[d] - reported kill, not comparable to estimates prior to the 2006 hunting season

[e] - licenses reported successfully filled, not comparable to estimates prior to 2006 hunting season

Table 1.2. Historical data on deer harvest by license type (1987-present). Grand Total includes IAAP harvest, special management unit hunts, nonresidents and youth.

	Regular Gun			Muzzleloader				Grand
Year	Paid	Landowner	Total	Early	Late	Total	Archery	Total*
1987	53,230	10,270	63,500	1,509	1,027	2,536	9,722	75,758
1988	66,757	13,298	80,055	1,835	1,294	3,129	9,897	93,756
1989	67,606	12,963	80,569	2,619	3,715	6,334	11,857	99,712
1990	69,101	9,095	78,196	2,819	5,884	8,703	10,146	98,002
1991	56,811	11,575	68,386	3,120	2,766	5,886	8,807	83,635
1992	50,822	10,453	61,275	3,316	3,231	6,564	8,814	77,684
1993	52,624	8,354	60,978	2,219	2,883	5,102	9,291	76,430
1994	59,054	8,735	67,789	2,610	3,196	5,806	12,040	87,231
1995	65,206	7,917	73,123	2,831	3,408	6,363	13,372	97,256
1996	71,577	10,896	82,473	2,895	4,558	7,453	12,314	107,632
1997	77,169	10,588	87,757	4,062	5,508	9,570	14,313	118,404
1998	73,165	9,989	83,154	4,448	5,343	9,791	12,302	112,608
1999	74,362	12,966	87,328	5,277	5,329	10,606	15,266	121,635
2000	77,743	13,189	90,932	4,585	5,936	10,521	17,727	126,535
2001	82,721	14,801	97,522	4,593	7,320	11,913	18,798	136,655
2002	77,940	18,932	96,872	5,091	7,772	12,863	20,703	140,490
2003	96,757	25,353	122,110	6,155	12,049	18,204	26,486	182,856
2004	97,830	26,333	124,163	6,818	13,550	20,368	30,025	194,512
2005	96,110	27,988	124,098	7,209	13,930	21,139	32,986	211,451
2006	76,218	14,956	91,174	5,431	8,698	14,129	22,008	150,552
2007	67,175	13,862	81,037	4,462	10,530	14,992	22,240	146,214
2008	63,330	12,762	76,092	4,342	10,254	14,596	21,793	142,194
2009	58,801	12,630	71,431	4,495	9,482	13,977	23,172	136,504
2010	56,511	11,455	67,966	4,026	8,838	12,864	21,154	127,094
2011	52,130	11,009	63,139	4,427	8,165	12,592	21,983	121,407
2012	49,110	10,931	60,041	3,896	10,823	14,719	21,981	115,608

*Harvest estimates from 2005 and prior are not comparable to subsequent years.

Table 1.3. Total reported deer kill by county during the 2012-2013 deer season.

County	Antlered Bucks	Does	Button Bucks	Shed-antlered Bucks	Total	Percent of kill		Kill/ Sq. Mile
						Does	Antlered Bucks [a]	
Adair	415	437	73	12	937	46.6%	45.6%	1.65
Adams	433	557	102	13	1,105	50.4%	40.4%	2.59
Allamakee	1545	1772	294	43	3,654	48.5%	43.5%	5.75
Appanoose	807	1080	200	52	2,139	50.5%	40.2%	4.09
Audubon	158	109	12	1	280	38.9%	56.8%	0.63
Benton	354	470	108	9	941	49.9%	38.6%	1.31
Black Hawk	322	314	84	6	726	43.3%	45.2%	1.28
Boone	404	471	88	16	979	48.1%	42.9%	1.71
Bremer	462	658	156	17	1,293	50.9%	37.0%	2.95
Buchanan	348	368	80	2	798	46.1%	43.9%	1.40
Buena Vista	150	108	21	3	282	38.3%	54.3%	0.49
Butler	476	412	100	4	992	41.5%	48.4%	1.70
Calhoun	78	57	10	0	145	39.3%	53.8%	0.25
Carroll	186	157	32	1	376	41.8%	49.7%	0.66
Cass	346	296	59	2	703	42.1%	49.5%	1.26
Cedar	526	692	166	21	1,405	49.3%	38.9%	2.40
Cerro Gordo	289	205	32	2	528	38.8%	55.1%	0.92
Cherokee	318	285	38	1	642	44.4%	49.7%	1.12
Chickasaw	464	465	124	10	1,063	43.7%	44.6%	2.10
Clarke	610	770	172	28	1,580	48.7%	40.4%	3.68
Clay	246	194	35	6	481	40.3%	52.4%	0.84
Clayton	1870	2331	393	28	4,622	50.4%	41.1%	5.93
Clinton	541	574	164	12	1,291	44.5%	42.8%	1.86
Crawford	242	205	35	2	484	42.4%	50.4%	0.68
Dallas	538	647	160	14	1,359	47.6%	40.6%	2.28
Davis	783	1265	281	49	2,378	53.2%	35.0%	4.67
Decatur	777	876	145	27	1,825	48.0%	44.1%	3.44
Delaware	652	717	144	19	1,532	46.8%	43.8%	2.68
Des Moines	405	528	122	11	1,066	49.5%	39.0%	2.61
Dickinson	150	111	18	1	280	39.6%	53.9%	0.74
Dubuque	828	990	212	15	2,045	48.4%	41.2%	3.34
Emmet	124	76	10	0	210	36.2%	59.0%	0.53
Fayette	840	1028	179	17	2,064	49.8%	41.5%	2.84
Floyd	370	298	80	3	751	39.7%	49.7%	1.49
Franklin	216	224	39	4	483	46.4%	45.5%	0.82
Fremont	297	341	70	10	718	47.5%	42.8%	1.37
Greene	264	218	39	3	524	41.6%	51.0%	0.92
Grundy	82	46	16	0	144	31.9%	56.9%	0.29
Guthrie	812	1066	233	20	2,131	50.0%	39.0%	3.58
Hamilton	192	180	31	2	405	44.4%	47.9%	0.70
Hancock	126	82	23	0	231	35.5%	54.5%	0.41
Hardin	418	363	85	8	874	41.5%	48.7%	1.52
Harrison	551	577	114	7	1,249	46.2%	44.7%	1.79
Henry	507	646	140	16	1,309	49.4%	40.0%	2.98
Howard	366	412	91	11	880	46.8%	42.8%	1.87

Table 1.3 (cont.). Total reported deer kill by county during the 2012-2013 deer season.

County	Antlered Bucks	Does	Button Bucks	Shed-antlered Bucks	Total	Percent of kill		Kill/ Sq. Mile
						Does	Antlered Bucks [a]	
Humboldt	113	85	24	1	223	38.1%	51.1%	0.51
Ida	88	61	13	0	162	37.7%	54.3%	0.38
Iowa	648	722	183	12	1,565	46.1%	42.2%	2.68
Jackson	1112	1278	306	25	2,721	47.0%	41.8%	4.23
Jasper	412	574	120	10	1,116	51.4%	37.8%	1.52
Jefferson	508	750	148	19	1,425	52.6%	37.0%	3.27
Johnson	713	978	259	22	1,972	49.6%	37.3%	3.19
Jones	669	936	190	24	1,819	51.5%	38.1%	3.11
Keokuk	479	559	128	4	1,170	47.8%	41.3%	2.02
Kossuth	256	140	32	2	430	32.6%	60.0%	0.44
Lee	740	985	226	27	1,978	49.8%	38.8%	3.75
Linn	809	1098	235	29	2,171	50.6%	38.6%	3.03
Louisa	441	596	144	9	1,190	50.1%	37.8%	2.95
Lucas	840	1214	267	65	2,386	50.9%	37.9%	5.50
Lyon	196	122	21	0	339	36.0%	57.8%	0.58
Madison	905	1264	290	37	2,496	50.6%	37.7%	4.43
Mahaska	421	489	123	10	1,043	46.9%	41.3%	1.82
Marion	762	918	218	9	1,907	48.1%	40.4%	3.36
Marshall	373	425	92	10	900	47.2%	42.6%	1.57
Mills	299	385	82	7	773	49.8%	39.6%	1.73
Mitchell	460	340	76	6	882	38.5%	52.8%	1.89
Monona	414	490	112	10	1,026	47.8%	41.3%	1.47
Monroe	671	875	175	33	1,754	49.9%	40.1%	4.03
Montgomery	382	544	118	6	1,050	51.8%	37.0%	2.49
Muscatine	543	752	203	8	1,506	49.9%	36.6%	3.40
O'Brien	189	105	15	0	309	34.0%	61.2%	0.54
Osceola	85	64	16	0	165	38.8%	51.5%	0.41
Page	416	514	107	11	1,048	49.0%	40.7%	1.96
Palo Alto	166	140	21	2	329	42.6%	51.1%	0.59
Plymouth	316	205	30	7	558	36.7%	57.9%	0.65
Pocahontas	87	70	10	0	167	41.9%	52.1%	0.29
Polk	349	754	175	12	1,290	58.4%	28.0%	2.17
Pottawattamie	522	648	117	9	1,296	50.0%	41.0%	1.35
Poweshiek	327	363	96	6	792	45.8%	42.0%	1.34
Ringgold	545	729	129	23	1,426	51.1%	39.8%	2.65
Sac	150	74	13	1	238	31.1%	63.4%	0.41
Scott	316	424	115	6	861	49.2%	37.4%	1.90
Shelby	213	194	37	0	444	43.7%	48.0%	0.76
Sioux	151	105	14	1	271	38.7%	56.1%	0.35
Story	242	222	49	7	520	42.7%	47.9%	0.92
Tama	677	676	147	16	1,516	44.6%	45.7%	2.11
Taylor	772	1160	199	37	2,168	53.5%	37.3%	4.11
Union	476	666	112	37	1,291	51.6%	39.7%	3.04
Van Buren	1076	1860	421	64	3,421	54.4%	33.3%	7.02
Wapello	433	612	112	22	1,179	51.9%	38.6%	2.70

Table 1.3 (cont.). Total reported deer kill by county during the 2012-2013 deer season.

County	Antlered Bucks	Does	Button Bucks	Shed-antlered Bucks	Total	Percent of kill: Does	Percent of kill: Antlered Bucks [a]	Kill/ Sq. Mile
Warren	1055	1414	354	35	2,858	49.5%	38.1%	5.00
Washington	681	993	254	14	1,942	51.1%	35.8%	3.42
Wayne	825	1166	224	37	2,252	51.8%	38.3%	4.23
Webster	372	358	84	10	824	43.4%	46.4%	1.15
Winnebago	148	81	16	0	245	33.1%	60.4%	0.61
Winneshiek	1031	1149	212	18	2,410	47.7%	43.5%	3.50
Woodbury	456	590	114	9	1,169	50.5%	39.8%	1.34
Worth	189	125	23	3	340	36.8%	56.5%	0.85
Wright	219	124	27	1	371	33.4%	59.3%	0.64
Total	46,626	55,843	11,838	1,301	115,608	48.3%	41.5%	2.06

[a] Shed-antlered bucks are included in the percentages for antlered bucks; this is what they represent biologically in the population.

Table 1.4. Historical data on deer license issue by license type (1985 - present). Grand Totals include special IAAP licenses (1985-1990), 4074 special late season AS licenses for zone 6 (1985), nonresidents, special management unit hunts and special youth licenses.

	Regular Gun			Muzzleloader				Grand
Year	Paid	Landowner	Total	Early	Late	Total	Archery	Total
1985	82,218	20,674	102,892		1,522	1,522	22,830	127,244
1986	84,858	25,432	110,290	2,246	1,973	4,219	26,521	141,030
1987	91,804	26,780	118,584	3,091	2,710	5,801	28,910	153,295
1988	101,338	28,002	129,340	3,565	3,618	7,183	30,020	166,543
1989	107,171	33,798	140,969	5,995	12,201	18,196	34,745	194,611
1990	106,781	27,106	133,887	6,602	15,949	22,551	35,217	192,551
1991	100,587	30,834	131,421	7,064	11,458	18,522	33,359	184,041
1992	100,461	30,084	130,545	8,280	10,978	19,315	34,165	186,436
1993	96,577	21,887	118,464	7,306	8,926	16,232	30,938	168,017
1994	102,773	22,809	125,582	8,113	9,737	17,850	34,222	180,525
1995	101,053	18,157	119,210	7,193	8,059	15,463	34,434	177,441
1996	106,746	28,080	134,826	8,806	11,820	20,626	36,351	202,834
1997	109,169	24,423	133,592	8,979	15,049	24,028	37,106	211,118
1998	114,358	25,960	140,318	9,504	12,721	22,225	39,506	223,419
1999	113,695	31,196	144,891	10,246	13,260	23,506	43,687	233,690
2000	113,728	32,116	145,844	10,279	15,242	25,521	44,658	229,800
2001	128,041	38,820	166,861	10,037	18,751	28,788	52,002	265,939
2002	118,973	42,989	161,962	9,807	19,479	29,286	51,534	265,185
2003	136,810	52,148	188,958	11,907	23,905	35,812	60,320	322,096
2004	147,797	53,682	201,479	13,125	29,237	42,362	67,393	353,172
2005	143,856	58,248	202,104	13,693	30,717	44,410	73,518	391,864
2006	149,650	40,831	190,481	12,664	32,492	45,156	76,358	377,525
2007	147,424	41,460	188,884	12,558	34,832	47,390	79,991	389,163
2008	150,642	42,186	192,828	12,498	36,611	49,109	84,615	406,169
2009	149,646	41,197	190,843	13,083	37,614	50,697	89,646	405,547
2010	145,107	41,519	186,626	12,433	36,577	49,010	87,734	394,298
2011	143,995	41,973	185,968	12,433	38,192	50,625	88,526	392,930
2012	139,890	42,547	182,437	12,335	38,531	50,866	90,352	378,454

Table 1.5. The dates, hours and zones for shotgun, archery and muzzleloader seasons (1995-present)

		Shotgun		Archery		Muzzleloader	
Year	Zones	Dates	Hours	Dates	Hours	Dates	Hours
1995	Statewide[f]	Dec 2-6	"	Oct 1-Dec 1&	"	Oct 14-Oct 22	1/2 hr before
1995	Statewide	Dec 9-17	"	Dec 18-Jan 10		Dec 18-Jan 10	1/2 hr after
1996	Statewide[g]	Dec 7-11	"	Oct 1-Dec 6&	"	Oct 12-Oct 20	1/2 hr before
1996	Statewide	Dec 14-22	"	Dec 23-Jan 10		Dec 23-Jan 10	sunrise to
1997	Statewide[h]	Dec 6-10	"	Oct 1-Dec 5&	"	Oct 11-Oct 18	1/2 hr after
1997	Statewide	Dec 13-21	"	Dec 22-Jan 10		Dec 22-Jan 10	sunset
1998	Statewide[h]	Dec 5-9	"	Oct 1-Dec 4&	"	Oct 17-Oct 25	"
1998	Statewide	Dec 12-20	"	Dec 21-Jan 10		Dec 21-Jan 10	"
1999	Statewide[h]	Dec 4-8	"	Oct 1-Dec 3&	"	Oct 16-Oct 24	"
1999	Statewide	Dec 11-19	"	Dec 20-Jan 10		Dec 20-Jan 10	"
2000	Statewide[i]	Dec 2-6	"	Oct 1-Dec 1&	"	Oct 14-Oct 22	"
2000	Statewide	Dec 9-17	"	Dec 18-Jan 10		Dec 18-Jan 10	"
2001	Statewide[h]	Dec 1-5	"	Oct 1-Nov 30 &	"	Oct 13- Oct 21	"
2001	Statewide	Dec 8-16	"	Dec 17-Jan 10		Dec 17-Jan 10	"
2002	Statewide[h]	Dec 7-11	1/2 hr before	Oct 1-Dec 6 &	"	Oct 12- Oct 20	"
2002	Statewide	Dec 14-22	sunrise to	Dec 23-Jan 10		Dec 23-Jan 10	"
2003	Statewide[h]	Dec 6-10	1/2 hr after	Oct 1-Dec 5 &	"	Oct 11- Oct 19	"
2003	Statewide	Dec 13-21	sunset	Dec 22-Jan 10		Dec 22-Jan 10	"
2004	Statewide[h]	Dec 4-8	"	Oct 1-Dec 3 &	"	Oct 16- Oct 24	"
2004	Statewide	Dec 11-19	"	Dec 20-Jan 10		Dec 20-Jan 10	"
2005	Statewide[h]	Dec 3-7	"	Oct 1-Dec 2 &	"	Oct 15- Oct 23	"
2005	Statewide	Dec 10-18	"	Dec 19-Jan 10		Dec 19-Jan 10	"
2006	Statewide[h]	Dec 2-6	"	Oct 1-Dec 1 &	"	Oct 14- Oct 22	"
2006	Statewide	Dec 9-17	"	Dec 18-Jan 10		Dec 18-Jan 10	"
2007	Statewide[h]	Dec 1-5	"	Oct 1-Nov 30 &	"	Oct 13- Oct 21	"
2007	Statewide	Dec 8-16	"	Dec 17-Jan 10		Dec 17-Jan 10	"
2008	Statewide[h]	Dec 6-10	"	Oct 1-Dec 5 &	"	Oct 11- Oct 19	"
2008	Statewide	Dec 13-21	"	Dec 22-Jan 10		Dec 22-Jan 10	"
2009	Statewide[h]	Dec 5-9	"	Oct 1-Dec 4 &	"	Oct 17- Oct 25	"
2009	Statewide	Dec 12-20	"	Dec 21-Jan 10		Dec 21-Jan 10	"
2010	Statewide[h]	Dec 4-8	"	Oct 1-Dec 3 &	"	Oct 16-Oct 24	"
2010	Statewide	Dec 11-19	"	Dec 20-Jan 10		Dec 20-Jan 10	"
2011	Statewide[h]	Dec 3-7	"	Oct 1-Dec 2 &	"	Oct 15-Oct 23	"
2011	Statewide	Dec 10-18	"	Dec 19-Jan 10		Dec 19-Jan 10	"
2012	Statewide[h]	Dec 1-5	"	Oct 1-Nov 30 &	"	Oct 13- Oct 21	"
2012	Statewide	Dec 8-16	"	Dec 17-Jan 10		Dec 17-Jan 10	"

[f] - 34 counties were any-sex during 1st season and 74 were bucks only during first 7 days of the 2nd season

[g] - 35 counties were any-sex during 1st season and 26 were bucks only during the first 5 days of the 2nd season

[h] - all counties were any-sex during both seasons

[i] - 17 counties were buck-only during first 3 days of first season

Table 1.6. Results from controlled hunts in the special deer management zones for 2012-2013.

AREA	WEAPON	# ANTLERLESS LICENSES	LICENSES SOLD	HARVEST
Amana Colonies	Archery & Firearm	500	160	88
Ames (City)	Archery	50	32	10
Ames (Perimeter)	Archery & Firearm	50	31	10
Backbone State Park	Firearms	80	68	41
Bettendorf & Riverdale (City)	Archery	300	88	34
Cedar Rapids (City)	Archery	700	253	163
Clinton (City)	Archery	300	82	49
Coralville (City)	Archery	400	190	87
Council Bluffs (City)	Archery	300	225	134
Davenport (City)	Archery	500	295	84
Denison (City)	Archery	50	17	8
Desoto NWR	Firearms	150	25	2
Dubuque (City)	Archery	400	169	94
Dubuque (County)	Archery & Firearm	250	48	15
Eldora	Archery	50	12	5
Elk Rock State Park	Firearms	50	48	18
Green Valley State Park	Firearms	50	50	34
Iowa Army Ammunition Plant	Archery & Firearm	950	177	124
Iowa Falls (Perimeter)	Archery & Firearm	30	3	1
Iowa Falls (City)	Archery	50	39	22
Jefferson County Park	Archery	50	7	2
Johnson County	Archery & Firearm	750	284	101
Kent Park	Archery & Firearm	160	114	44
Keokuk (City)	Archery	150	44	22
Knoxville (City)	Archery	50	4	2
Lake Ahquabi	Firearms	45	30	19
Lake Iowa	Archery & Firearm	200	63	23
Lake Macbride	Archery	50	28	15
Lake Manawa	Archery	50	50	24
Lake of Three Fires	Firearms	45	37	27
Ledges State Park	Archery	30	20	7
Linn County	Archery & Firearm	750	214	87
Marshalltown (City & Perimeter)	Archery & Firearm	110	65	30
Muscatine (City)	Archery	200	60	46
Oskaloosa	Archery	200	44	28
Ottumwa (City)	Archery	300	100	44
Pine Lake State Park	Archery	50	31	16
Polk-Dallas Archery Zone	Archery	1200	827	507
Polk-Dallas Rural Zone	Archery & Firearm	400	42	11
Reichelt Area	Firearms	50	20	11
Riverside Park	Archery	45	5	2
Rock Creek State Park	Firearms	20	20	8
Scott County Park	Firearms	50	49	21
Smith Wildlife Area	Firearms	9	4	1
Springbrook State Park	Firearm	30	28	13
Squaw Creek Park	Archery	100	81	38
Stone State Park	Archery	50	47	23
Viking Lake State Park	Firearms	50	42	18
Wapsi Environmental Center	Firearms	4	0	0
Washawtee	Archery & Firearm	50	29	16
Waterloo-Cedar Falls (City)	Archery	290	182	84
Depredation & Shooting Permits	Archery & Firearm	11,107	4,369	2,305
TOTALS		21,855	8,952	4,618

Table 1.7. Reported deer and ranking for each season by county for total kill during the 2012-2013 deer season.

	Harvest							Rank						
	Paid	Paid Muzzle.		Paid	Paid	Non-			Muzzleloader				Non-	
County	Shotgun	Early	Late	Archery	Youth	resident	Total	Shotgun	Early	Late	Archery	Youth	resident	Total
Clayton	2602	159	204	607	134	123	4622	1	1	6	2	1	14	1
Allamakee	1800	134	275	475	77	337	3654	2	2	1	5	8	1	2
Van Buren	1072	79	226	450	107	332	3421	8	4	3	7	3	3	3
Warren	1202	62	218	649	129	65	2858	5	7	5	1	2	25	4
Jackson	1409	75	175	445	72	113	2721	3	5	15	8	9	16	5
Madison	1077	32	194	460	79	95	2496	7	43	8	6	6	17	6
Winneshiek	1240	58	190	356	65	117	2410	4	12	10	13	12	15	7
Lucas	921	33	191	332	62	160	2386	10	41	9	18	17	8	8
Davis	786	48	178	314	49	192	2378	16	16	14	21	26	7	9
Wayne	716	35	201	270	53	268	2252	19	39	7	31	24	4	10
Linn	629	60	228	545	80	25	2171	29	10	2	3	5	54	11
Taylor	709	15	101	203	21	336	2168	20	77	36	43	70	2	12
Appanoose	707	51	222	335	58	192	2139	22	14	4	17	20	6	13
Guthrie	855	40	184	505	64	88	2131	14	28	12	4	13	18	14
Fayette	1134	82	137	323	68	54	2064	6	3	21	19	10	30	15
Dubuque	1050	59	70	374	86	30	2045	9	11	54	10	4	46	16
Lee	917	35	93	337	64	65	1978	11	38	40	16	14	24	17
Johnson	769	67	158	422	67	35	1972	17	6	18	9	11	40	18
Washington	886	28	179	317	53	33	1942	13	48	13	20	23	43	19
Marion	907	61	187	356	63	43	1907	12	8	11	12	16	35	20
Decatur	584	22	115	299	24	214	1825	33	58	28	25	67	5	21
Jones	806	57	155	297	63	52	1819	15	13	19	26	15	31	22
Monroe	630	50	129	284	48	157	1754	28	15	24	27	28	9	23
Clarke	645	27	106	265	36	60	1580	27	49	32	32	41	28	24
Iowa	767	38	131	230	58	50	1565	18	32	22	36	21	32	25
Delaware	700	60	113	277	78	11	1532	24	9	30	29	7	77	26
Tama	661	37	170	240	36	50	1516	26	35	16	35	42	33	27
Muscatine	706	38	130	348	41	14	1506	23	33	23	15	35	70	28
Ringgold	573	40	74	142	27	129	1426	35	29	52	56	60	11	29
Jefferson	708	18	94	161	34	77	1425	21	71	39	47	46	20	30
Cedar	622	38	120	302	33	35	1405	32	30	26	22	49	39	31
Dallas	513	42	111	369	59	18	1359	40	24	31	11	19	62	32
Henry	623	34	70	207	33	47	1309	31	40	55	41	51	34	33
Pottawattamie	461	43	154	283	43	34	1296	45	21	20	28	31	42	34
Bremer	496	42	117	300	61	16	1293	41	23	27	23	18	66	35
Clinton	573	41	94	273	45	36	1291	34	26	38	30	30	37	36
Union	516	13	106	147	29	74	1291	39	81	33	53	57	21	37
Polk	290	26	61	300	42	12	1290	65	50	64	24	33	76	38
Harrison	474	46	166	220	49	126	1249	43	17	17	37	27	12	39
Louisa	625	21	82	204	31	18	1190	30	60	43	42	53	63	40
Wapello	386	16	72	243	42	36	1179	55	74	53	33	34	38	41
Keokuk	679	23	92	135	28	55	1170	25	56	41	59	59	29	42
Woodbury	476	30	103	350	43	17	1169	42	46	35	14	32	65	43
Jasper	533	25	127	179	30	12	1116	37	51	25	44	54	75	44
Adams	406	18	76	123	24	132	1105	52	70	50	63	66	10	45
Des Moines	335	19	77	214	34	25	1066	62	68	48	38	45	53	46
Chickasaw	522	45	68	156	45	29	1063	38	19	58	49	29	48	47
Montgomery	441	8	80	106	19	61	1050	47	88	45	69	76	27	48
Page	429	11	69	123	15	63	1048	48	83	56	64	85	26	49
Mahaska	559	21	103	151	30	35	1043	36	61	34	51	55	41	50
Monona	396	37	97	171	37	124	1026	53	34	37	46	40	13	51
Butler	467	36	68	138	54	9	992	44	36	57	57	22	80	52
Boone	350	42	88	208	34	26	979	59	22	42	39	44	51	53
Benton	388	45	77	207	33	12	941	54	18	47	40	48	73	54
Adair	419	18	113	112	20	79	937	49	69	29	67	71	19	55
Marshall	449	36	80	145	23	25	900	46	37	44	55	68	55	56
Mitchell	356	28	57	121	50	41	882	57	47	66	66	25	36	57
Howard	376	38	53	127	39	23	880	56	31	68	60	37	58	58
Hardin	319	41	78	154	37	29	874	63	27	46	50	39	49	59

Table 1.7 (cont.). Reported deer and ranking for each season by county for total kill during the 2012-2013 deer season.

	Harvest							Rank						
	Paid	Paid Muzzle.		Paid	Paid	Non-			Muzzleloader				Non-	
County	Shotgun	Early	Late	Archery	Youth	resident	Total	Shotgun	Early	Late	Archery	Youth	resident	Total
Scott	257	30	67	240	33	4	861	67	45	60	34	52	92	60
Webster	354	45	62	157	36	20	824	58	20	63	48	43	61	61
Buchanan	412	23	42	126	28	4	798	50	52	75	61	58	90	62
Pow eshiek	409	21	75	136	25	26	792	51	63	51	58	65	52	63
Mills	293	21	65	148	13	31	773	64	62	61	52	88	45	64
Floyd	343	23	53	122	33	7	751	60	54	67	65	50	86	65
Black Haw k	252	41	50	145	40	4	726	68	25	71	54	36	89	66
Fremont	243	15	77	97	14	68	718	69	75	49	71	86	22	67
Cass	341	19	52	95	26	65	703	61	67	69	72	61	23	68
Cherokee	240	23	45	86	29	28	642	70	53	72	73	56	50	69
Plymouth	203	23	60	109	39	11	558	74	57	65	68	38	78	70
Cerro Gordo	183	31	40	126	13	9	528	76	44	76	62	87	81	71
Greene	234	10	45	81	19	30	524	71	84	73	75	74	47	72
Story	159	20	52	176	20	8	520	83	66	70	45	72	85	73
Craw ford	263	8	36	53	9	24	484	66	87	79	83	92	56	74
Franklin	214	13	33	48	16	24	483	73	80	81	88	83	57	75
Clay	173	32	44	85	19	32	481	80	42	74	74	73	44	76
Shelby	219	8	68	74	9	9	444	72	89	59	76	93	83	77
Kossuth	180	11	62	101	17	9	430	79	82	62	70	81	82	78
Hamilton	183	21	38	60	17	8	405	77	59	78	79	80	84	79
Carroll	164	20	39	65	17	14	376	81	64	77	78	79	67	80
Wright	199	7	29	57	26	6	371	75	94	83	81	63	88	81
Worth	163	15	34	53	17	21	340	82	78	80	84	82	59	82
Lyon	148	20	23	56	26	14	339	84	65	89	82	62	69	83
Palo Alto	182	6	18	36	13	20	329	78	95	94	92	89	60	84
O'Brien	123	14	17	52	25	13	309	86	79	95	85	64	72	85
Buena Vista	98	0	28	50	11	12	282	91	99	84	86	90	74	86
Audubon	140	7	19	31	10	13	280	85	90	92	94	91	71	87
Dickinson	111	16	29	57	18	4	280	88	73	82	80	78	91	88
Sioux	113	15	24	50	34	2	271	87	76	87	87	47	95	89
Winnebago	99	17	24	71	7	7	245	90	72	88	77	95	87	90
Sac	106	7	20	36	22	1	238	89	93	91	93	69	98	91
Hancock	86	23	19	43	15	10	231	94	55	93	89	84	79	92
Humboldt	86	9	16	41	19	14	223	95	85	96	90	75	68	93
Emmet	95	3	27	36	6	17	210	93	98	85	91	96	64	94
Pocahontas	98	7	20	22	6	1	167	92	92	90	95	98	97	95
Osceola	67	9	27	21	19	1	165	99	86	86	98	77	96	96
Ida	84	5	16	20	7	3	162	96	97	97	99	94	93	97
Calhoun	74	5	6	21	3	2	145	97	96	98	96	99	94	98
Grundy	72	7	5	21	6	0	144	98	91	99	97	97	99	99
Total	49,110	3,133	8,993	19,490	3,720	5,362	115,608							

Table 1.8. A summary of archery season dates, hours, success rates and other information (1985 - present).

Year	Dates	Hours	Percent Bucks in Harvest	Success Rate	Mean Days/Hunter	General Comments
1985	Oct 12-Dec 6	1/2 hr before	68	26	15	$ 20 fee.
1986	Oct 11-Dec 5	sunrise to	72	38	17	Limit 1/Bow and 1/Gun
1987	Oct 1-Dec 4 &	1/2 hr after	68	35		Added late season.
	Dec 21-Jan 10	sunset				
1988	Oct 1-Dec 2 &	"	71	35	16	
	Dec 19-Jan 10	"				
1989	Oct 1-Dec 1 &	"	73	36	20	Bonus 2nd tag for antlerless deer
	Dec 18-Jan 10	"				statewide
1990	Oct 1-Nov 30 &	"	65	32	19	Bonus tag for antlerless early or
	Dec 17-Jan 10	"				anysex late,statewide
1991	Oct 1-Dec 6 &	"	73	28	17	Bonus tag for antlerless deer available
	Dec 23-Jan 10	"				only in zones 3a,4a,5a and 6. $25 fee.
1992	Oct 1-Dec 4 &	"	69	28	15	Bonus tag for antlerless deer available
	Dec 21 -Jan 10	"				only in bonus antlerless zone if no gun tag.
1993	Oct 1-Dec 3 &	"	73	32	17	Bonus tag for antlerless deer available
	Dec 20-Jan 10	"				only in bonus antlerless zone if no gun tag.
1994	Oct 1-Dec 2&	"	77	37	16	Bonus tag for antlerless deer available
	Dec 19-Jan 10	"				only in bonus antlerless zone if no gun tag.
1995	Oct 1-Dec 1&	"	76	39	17	Bonus tag for antlerless deer available
	Dec 18-Jan 10	"				only in bonus antlerless zone if no gun tag.
1996	Oct 1-Dec 6&	"	78	37	16	Bonus tag for antlerless deer available
	Dec 23-Jan 10	"				only in bonus antlerless zone if no gun tag.
1997	Oct 1-Dec 5&	"	71	42	17	Bonus tag for antlerless deer available only in
	Dec 22-Jan 10	"				bonus antlerless zone. Could get firearm license also.
1998	Oct 1-Dec 4&	"	76	34	15	Bonus tag for antlerless deer available only in
	Dec 21-Jan 10	"				bonus antlerless zone. Could get firearm license also.
1999	Oct 1-Dec 3&	"	79	37	16	Bonus tag for antlerless deer available only in
	Dec 20-Jan 10	"				bonus antlerless zone. Could get firearm license also.
2000	Oct 1-Dec 1&	"	80	44	17	Bonus tag for antlerless deer available only in
	Dec 18-Jan 10	"				bonus antlerless zone. Could get firearm license also.
2001	Oct 1-Nov 30&	"	75	37	17	Bonus tag for antlerless deer available in every county.
	Dec 17-Jan 10	"				Could get firearm license also.
2002	Oct 1-Dec 6 &	"	66	39	17	Bonus tag for antlerless deer available in every county.
	Dec 23-Jan 10	"				Could get firearm license also.
2003	Oct 1-Dec 5 &	"	54	44	18	Bonus tag for antlerless deer available in every county.
	Dec 22-Jan 10	"				Could get firearm license also.
2004	Oct 1-Dec 3 &	"	54	46	18	Bonus tag for antlerless deer available in every county.
	Dec 20-Jan 10	"				Could get firearm license also.
2005	Oct 1-Dec 2 &	"	54	53	17	Bonus tag for antlerless deer available in every county.
	Dec 19-Jan 10	"				Could get firearm license also.
2006	Oct 1-Dec 1 &	"	57	29[a]	NA	Tags for antlerless deer available in 79 counties.
	Dec 18-Jan 10	"				Could get firearm license also.
2007	Oct 1-Nov 30 &	"	59	28	NA	Tags for antlerless deer available in 77 counties.
	Dec 17-Jan 10	"				Could get firearm license also.
2008	Oct 1-Dec 5 &	"	58	26	NA	Tags for antlerless deer available in 77 counties.
	Dec 22-Jan 10	"				Could get firearm license also.
2009	Oct 1-Dec 4 &	"	58	26	NA	Tags for antlerless deer available in 77 counties.
	Dec 21-Jan 10	"				Could get firearm license also.
2010	Oct 1-Dec 3 &	"	60	24	NA	Tags for antlerless deer available in 72 counties.
	Dec 20-Jan 10	"				Could get firearm license also.
2011	Oct 1-Dec 2 &	"	60	25	NA	Tags for antlerless deer available in 72 counties.
	Dec 19-Jan 10	"				Could get firearm license also.
2012	Oct 1-Nov 30 &	"	61	25	NA	Tags for antlerless deer available in 72 counties.
	Dec 17-Jan 10	"				Could get firearm license also.

[a] Success rates from 2005 and prior are not comparable to subsequent years.

Table 1.9. A summary of muzzleloader season dates, hours, success rates and other information (1984 - present).

Year	Dates	Hours	Percent Bucks in Harvest	Success Rate	Mean Days/Hunter	General Comments
1984	Dec 15-21	Sunrise to Sunset	45	22	6	1500 A-S Quota. $15 fee.
1985	Dec 21-27	"	44	34	4	2000 A-S Quota. $20 fee.
1986	Oct 11-17	1/2 hr before	100	17	4	2500 B-O Quota.
	Dec 20-Jan 4	sunrise to	43	40	6	Unlimited A-S Quota.
1987	Oct 10-18	1/2 hr after	55	52	8	3000 A-S Quota
	Dec 21-Jan 10	sunset	46	42	6	Unlimited A-S Quota.
1988	Oct 15-23	"	55	55	4	3500 A-S Quota
	Dec 19-Jan 10	"	41	39	6	Unlimited A-S Quota.
1989	Oct 14-22	"	55	49	5	5000 A-S Quota
	Dec 18-Jan 10	"	28	39	9	Unlimited A-S Quota. Could hunt during shotgun & late muzzleloader seasons.
1990	Oct 13-21	"	53	46	5	5000 A-S Quota
	Dec 17 -Jan 10	"	50	45	8	Could hunt shotgun & late muzzleloader season.
1991	Oct 12-20	"	54	47	5	5000 A-S Quota
	Dec 23 -Jan 10	"	40	33	8	Could hunt shotgun & late muzzleloader season, but all 2nd tags valid for antlerless only in zones 3a,4a,5a&6.
1992	Oct 10-18	"	60	45	4	7500 Anysex license quota.
	Dec 21-Jan 10	"	40	36	8	All second licenses antlerless, Zones 4a,5a&6.
1993	Oct 9-17	"	71	34	5	7500 license quota, 65 counties buck-only.
	Dec 20-Jan 10	"	46	39	8	Antlerless in 14 counties, 35 counties buck-only.
1994	Oct 15-23	"	78	36	5	7500 license quota, 67 counties buck-only.
	Dec 19-Jan 10	"	52	39	8	Antlerless in 14 counties, 35 counties buck-only.
1995	Oct 14-22	"	73	43	5	7500 license quota, 69 counties buck-only.
	Dec 18-Jan 10	"	55	46	8	No antlerless tags, 29 counties modified buck-only.
1996	Oct 12-20	"	75	39	5	7500 license quota, 64 counties buck-only.
	Dec 23-Jan 10	"	49	46	7	Antlerless in 15 1/2 counties, 26 modified buck-only.
1997	Oct 11-19	"	55	62	4	7500 license quota, no counties buck only
	Dec 22-Jan 10	"	44	52	7	Antlerless in 19 1/2 counties, no counties buck-only.
1998	Oct 17-25	"	64	52	5	7500 license quota, no counties buck only
	Dec 21-Jan 10	"	54	50	7	Antlerless in 20 counties, no counties buck-only.
1999	Oct 16-24	"	60	57	4	7500 license quota, no counties buck only
	Dec 20-Jan 10	"	52	46	7	Antlerless in 21 counties, no counties buck-only.
2000	Oct 14-22	"	60	53	4	7500 license quota, 16 counties modified buck only
	Dec 18-Jan 10	"	50	47	7	Antlerless in 21 counties, no counties buck-only.
2001	Oct 13-21	"	54	53	4	7500 license quota, no counties buck only
	Dec 17-Jan 10	"	52	44	8	Antlerless in all counties, no counties buck-only.
2002	Oct 12- Oct 20	"	65	56	4	7500 license quota, no counties buck only
	Dec 23-Jan 10	"	41	46	6	Antlerless in all counties, no counties buck-only.
2003	Oct 11- Oct 19	"	54	55	4	7500 license quota, no counties buck only
	Dec 22-Jan 10	"	37	51	6	Antlerless in all counties, no counties buck-only.
2004	Oct 16- Oct 24	"	55	58	5	7500 license quota, no counties buck only
	Dec 20-Jan 10	"	37	48	6	Antlerless in all counties, no counties buck-only.
2005	Oct 15- Oct 23	"	53	58	4	7500 license quota, no counties buck only
	Dec 19-Jan 10	"	32	54	6	Antlerless in all counties, no counties buck-only.
2006	Oct 14-22	"	55	43[a]	NA	7500 license quota, no counties buck only
	Dec 18-Jan 10	"	41	27	NA	Antlerless in 79 counties, no counties buck-only.
2007	Oct 13-21	"	55	35	NA	7500 license quota, no counties buck only
	Dec 17-Jan 10	"	44	30	NA	Antlerless in 77 counties, no counties buck-only.
2008	Oct 11-19	"	53	35	NA	7500 license quota, no counties buck only
	Dec 22-Jan 10	"	43	28	NA	Antlerless in 77 counties, no counties buck-only.
2009	Oct 17-25	"	55	34	NA	7500 license quota, no counties buck only
	Dec 21-Jan 10	"	45	26	NA	Antlerless in 77 counties, no counties buck-only.
2010	Oct 16-24	"	57	32	NA	7500 license quota, no counties buck only
	Dec 20-Jan 10	"	46	25	NA	Antlerless in 72 counties, no counties buck-only.
2011	Oct 15-23	"	53	36	NA	7500 license quota, no counties buck only
	Dec 19-Jan 10	"	45	22	NA	Antlerless in 72 counties, no counties buck-only.
2012	Oct 13-21	"	55	32	NA	7500 license quota, no counties buck only
	Dec 17-Jan 10	"	48	27	NA	Antlerless in 72 counties, no counties buck-only.

[a] Success rates from 2005 and prior are not comparable to subsequent years.

Table 1.10. The results of the deer population surveys (1976 - present).

	New Spotlight Survey		Aerial Survey			Traffic Kill Per Billion Vehicle Mi.	
Year	Mean Count	Percent Change	Weighted Count*	Percent Change	Traffic Kill	Number	Percent Change
1976			-	-	2,537	225	-1%
1977			-	-	2,929	252	12%
1978			-	-	2,872	241	-4%
1979			-	-	3,005	259	7%
1980			-	-	3,743	335	29%
1981			-	-	4,164	365	9%
1982			-	-	4,805	412	13%
1983			5,903	-	5,335	448	9%
1984			6,387	8%	6,177	500	12%
1985			7,607	19%	5,925	495	-1%
1986			9,790	29%	7,225	593	20%
1987			-	-	8,440	678	14%
1988			10,289	5%[a]	9,248	707	4%
1989			9,672	-6%	8,914	655	-7%
1990			7,070	-27%	8,799	607	-7%
1991			9,191	30%	8,428	590	-3%
1992			8,235	-10%	9,135	616	4%
1993			8,680	5%	9,576	624	1%
1994			10,483	21%	10,438	663	6%
1995			10,877	4%	11,167	699	5%
1996			12,051	11%	12,276	748	7%
1997			13,902	15%	13,148	778	4%
1998			12,651	-9%	12,427	714	-8%
1999			14,928	18%	11,366	637	-11%
2000			15,375	3%	11,114	642	1%
2001			15,793	3%	14,243	799	24%
2002			13,107	-17%	12,377	662	-17%
2003			15,676	20%	13,720	726	10%
2004			18,028	15%	15,361	803	11%
2005			15,324	-15%	14,364	760	-5%
2006	54.6		12,565	-18%	14,940	783	3%
2007	59.2	8%	13,445	7%	13,730	720	-8%
2008	70.9	20%	13,427	0%	10,961	602	-16%
2009	68.3	-4%	13,528	1%	13,518	726	21%
2010	57.9	-15%	13,591	0%	10,153	547	-25%
2011	58.4	1%	13,707	1%	10,626	570	4%
2012	50.7	-13%	-	-	10,358	554	-3%
2013	71.3	41%	discontinued	-			

*adjusted for missing counts

[a]change from 1986 to 1988

WILD TURKEYS

Historical Perspective

History: Iowa's primitive oak-hickory forests covered nearly 7 million acres (2.8 million ha) during the original land survey in 1859 (Thornton and Morgan 1959). Settlers' records indicate turkeys were associated with most of this timber. Although turkeys may not have been as numerous in Iowa as in their primary range east of the Mississippi River, they were still plentiful (Peterson 1943). Unfortunately, wild turkeys were eliminated from Iowa by the early 1900's due to habitat loss and partly because of uncontrolled subsistence 7 market hunting (Little 1980).

Habitat: Only 2.6 million acres (1.1 million ha) of forest remained when the second land survey was completed in 1956, a reduction of 63% in a century, and perhaps 50% of the remaining forest was badly mismanaged through overgrazing (Thornton and Morgan 1959). In 1974, Iowa had 1.6 million acres of forestland, which made up 4.3% of the State's land area. Iowa's forests now total 2.1 million acres (850,202 ha), just 5.7% of the State and only 30% of pre-settlement forests (Leatherberry et al. 1990).

Forest types throughout Iowa are second or third growth oak-hickory on uplands and elm-ash-cottonwood on floodplains (Ostrom 1976). Oak types constitute 55% of all forest stands, with red oak - white oak - hickory (35% of all forests) dominant in all regions. Maple-basswood stands (10%) are found on mesic sites and are climax in the northeast and central regions, but are replaced by white oak (10%) and short, scrubby bur oak (10%) in the southern and arid western regions, respectively. Aspen and other northern hardwoods (1%) are found occasionally in the Northeast. Statewide, 65% of all commercial stands are entering sawtimber and 20% are in poletimber (Leatherberry et al. 1990). Ninety-two percent of Iowa's forest land is privately owned, with nearly half of the remaining 8% in state ownership, 38% owned by other public agencies and 14% in park-refuges withdrawn from active management (Ostrom 1976, Leatherberry et al. 1990). Iowa has no national forests, parks or wildlife refuges devoted to forest land management.

Restoration: The Iowa Department of Natural Resources (IDNR) began experimenting with turkey restoration in 1920 using pen-reared birds. Releases were made over the next 18 years but all releases were uniform failures.

The first attempts at releasing transplanted wild turkeys were in the early 1960's. Rio Grande and Merriam's subspecies were released at several sites during the 1960's but ultimately their poor adaptation to Iowa's oak-hickory forest led to population failures for both subspecies.

The first release of eastern wild turkeys was in 1966 in Lee County. The population response of these turkeys was phenomenal – survival of released birds, reproduction, and poult survival were all excellent. The success of this eastern subspecies stocking led to an additional stocking that also proved successful. By 1971 it was obvious that the Eastern subspecies was the turkey to use in future restoration attempts.

Since the initial 1965 release, 3,578 Eastern wild turkeys have been trapped and released at 259 sites at a stocking rate of approximately 3 adult gobblers and 10 hens per site. Nearly all sites are considered successful; however the most recent stockings are still being evaluated. No sites are currently considered to be unsuccessful. Most sites were opened to hunting after

populations were established, usually about 5 years post-stocking. Restorations by the IDNR during the last 2 decades have returned wild turkeys to about 95% of the remnant timber stands in the state. Restoration efforts ended in 2001 with the last release site occurring in Linn County.

Spring Harvest Survey

History: Spring bearded-turkey-only hunting seasons began in 1974. The objective of Iowa's spring season has been to maximize hunting opportunity while maintaining a quality hunting experience. Quality hunting is defined as the chance to hunt turkeys reasonably free of interference from other hunters. The primary method used to reduce interference is to control hunter densities through license quotas established for multiple zones and seasons.

Annual licenses issued, hunters, and harvest increased gradually from 1974-87 (Fig. 2.1). During 1988-99, there were dramatic increases in license issue and hunter numbers due to an unlimited license quota in the fourth season. The area open to spring turkey hunting in Iowa also increased dramatically from 2 small southern zones and 1 larger northeast zone in 1974 to the entire state during the 1999 spring season (Fig. 2.2, a and b). Hunter numbers and timber acres with huntable turkey populations have increased proportionally, allowing hunter densities to remain at < 4 hunters/mi^2 of timber per season.

2013: Iowa's 40th modern spring hunting season recorded an estimated 10,565 turkeys harvested, with 51,209 licenses sold (Table 2.1 and 2.3). This was the 25th year the entire state was open to spring turkey hunting (Table 2.11). The 44-day season (6 April through 19 May, 2013) was partitioned into 5 separate seasons: a 9-day youth-only season, and 4 regular seasons (4, 5, 7, and 19-day seasons). The 4-season format, with unlimited license quota an unlimited license quota for all the periods, resulted in 42,627 resident shotgun licenses issued, which was an increase of 4,632. An additional record 6,630 archery-only licenses were issued in 2013. Archery-only licenses harvested 986 turkeys, resulting in a 14.9% success rate in 2013.

Twenty percent of the resident hunters were successful in harvesting a gobbler in 2013 (Table 2.4). Spring harvest success rates fluctuated around 20-30% during the first 12 years (unweighted average = 25.1 for 1974-85) but success increased each year during 1985-88 (Fig. 2.4). Declines observed in spring hunter success rates during 1983 and 1984 (Fig. 2.4) can be partially explained by poor brood production during the summers of 1982 (Fig. 2.10). Similarly, the decline in hunter success rates between 1988 and 1993 may be explained by 6 years of poor brood production starting in 1988. The success rates from 2002-2006 averaged 46.0%.

The decrease in success rates beginning in 2007 and number of turkeys harvested is likely due the change in survey methods. In spring of 2007, mandatory harvest reporting required successful hunters to report turkey harvested. A follow-up post card survey for spring of 2007 revealed 74% compliance rate, which equated to nearly 4,000 harvested turkeys that were not reported initially during the spring season. The major reasons for the non-reports were attributed to hunters forgetting to report (40%), difficulty in reporting process (29%), and unaware of the requirement (22%).

This was the 24th spring that non-residents were allowed to hunt turkeys in Iowa. Quotas filled in zone 4 (all seasons), zone 5 (seasons 1 & 2), Zone 6 (season 4), and Zone 8 (seasons 2-4) in 2013, leaving 196 licenses available. Non-resident hunters harvested 741 turkeys (Table 2.3). Non-residents reported more turkeys harvested per hunter than residents in harvesting a

spring gobbler (20% versus 38%, respectively) (Table 2.4).

In spring of 2013, known jakes (spurs < ½") harvested were 20% of the total harvest (16% the previous year). Turkeys harvested with spurs ½" – ¾" were 23% (24% in 2012) of the total harvest. The majority (57%) of turkeys harvested had spurs > ¾".

Youth Turkey Season

Iowa's 9th youth spring turkey season has held in April 6-14, 2013. During the 9 day season, youth 15 and younger were allowed to participate with an accompanied licensed adult (adult licensed for one of the regular seasons). In 2005, the first year of the youth season, ages were limited to ages 12-15. Starting in 2006, ages 15 and younger could participate in the youth season. Youth season license sales increased by 589 for a record number (4,039) of licenses sold (Fig. 2.8).

Since the inception of ELSI (Electronic Licensing System of Iowa) in 2001, hunter age and gender has been recorded (Fig. 2.8). From 2001-2006, youth spring turkey hunters (age 15 and under) increased each year. After the first youth season in 2006, youth licenses have varied slightly, but overall have remained similar. The total number of licenses sold has decreased each year since 2006 with a slight increase in 2009, 2011 and 2012, with a decrease in 2013 (Fig. 2.8).

Fall Harvest Survey

History: Fall, any-sex turkey hunting was initiated in Iowa in 1981 to provide additional hunting recreation from the wild turkey resource. Because any-sex hunts are more controversial than male-only hunts and potential exists for over-harvesting hens, carefully controlled fall hunts began in 1981 on an experimental basis. These hunts occurred in portions of southern Iowa, which had established, stable turkey populations. Fall turkey hunting has changed dramatically since the initial experimental 1981 season. The area encompassed by fall hunting zones has increased from 2 small zones in southern Iowa during 1981 to 9 zones in 2005 encompassing the entire state (Fig. 2.5, a and b). Fall zone boundaries in 1990 encompassed 9.7 times more area than in 1981, with 13.9 times more by 2005 (Table 2.12). Although zone boundaries did not change during 1991 - 1994, only zones 3 and 6 (northeast Iowa) had shotgun licenses available (residents only). The 5 remaining fall zones experienced 6 years of poor brood production and therefore did not have any licenses available. However in 1995, because of increased brood production in 1994, almost the entire state was opened to fall hunting. In 1999, the amount of land open to fall hunting increased slightly from 1998 with the addition of zone 8 (Fig. 2.5).

Results from a radio-telemetry study in southern Iowa and computer modeling of southern Iowa turkey mortality and hatching data suggest as much as 10% of the population could be removed during fall hunting without reducing long-term turkey populations. Past seasons' harvest have not approached this theoretical value. The present management objective is to increase fall hunting opportunities and harvest. A harvest of fall turkeys similar to the number of spring gobblers harvested is the present goal.

The number of fall licenses issued, hunter numbers and harvest increased steadily from 1981-89 (Fig. 2.6 and Tables 2.5-2.7).

As with spring seasons, fall turkey hunters have previously had exceptional statewide success rates, averaging 51% during 1981-89 (Table 2.8). However fall success rates have had considerable annual variation, ranging from 40 - 60% (Fig. 2.3).

Fall license quotas generally surpassed applications from 1981-84 and license quotas filled in only one zone in 1985. With the expansion of 2 hunting zones in 1986 a large increase in applications occurred. This resulted in rejecting a number of permit applications. License quota was increased in 1987 and in 1988. After 2 application periods in fall 1988, 51 licenses remained. Therefore license quota remained unchanged in 1989 although the hunting zone area increased (Table 2.12). Because of the documented poor poult production in 1988 and 1989, license quota remained unchanged for 1990. Fall 1990 hunting zones were expanded to distribute (and hopefully reduce) hunting pressure on flocks. Continued poor statewide brood production warranted dramatic reductions in fall harvest for 1991 - 1994. Only the northeast corner (Zones 3 & 6) continued to have average brood production that allowed a fall shotgun season

Annual changes in hunter success, harvest and the age-sex composition of the fall harvest are at least partly explained by population events occurring in southern Iowa from 1981 to 1985. Excellent recruitment in the years of 1978 through 1980 produced very high turkey densities (100 wintering turkeys/mi^2 of forest on the southern Iowa Stephens Forest study area and region-wide densities of at least 40-50/mi^2). A cool wet spring in 1981 led to essentially no recruitment just prior to the first fall season. A large carryover of adults from previous successful hatches meant that hunters had high success rates in the fall of 1981, but harvested almost no juvenile turkeys. A slightly better hatch in 1982, coupled with the reduction in available adult turkeys, led to proportionally more juveniles in the bag in 1982, but the harvest and success rates were reduced. A good hatch in 1983 produced more juveniles in the bag and an increased harvest, suggesting populations were recovering from a 2-year depression. Another good hatch in 1984 resulted in even more juveniles in the bag and again an increased harvest. Fall 1985 was similar to 1984. The greatest effect was felt in southern Iowa where spring weather was least favorable in both 1981 and 1982. Indications of over-harvest on popular public hunting areas were greatest in the years when few juveniles were present to buffer adult turkey harvest. Harvest rates of adult hens (> 2 years old), the most important age class reproductively, were greatest when few juveniles were produced and decreased to tolerable levels when recruitment was good.

A similar scenario developed during the recent 6-year (1988-93) decline in poult production. Climatic factors, i.e., 2 years of drought followed by floods in 1990, 1991, and 1993, are assumed responsible for the reduced poult production observed over that time period. Likewise, harvest and hunting success declined over the same period, presumably as a result of the decrease in poult production. Fall harvest and hunting success rate increased in 1995 following a slight increase in poult production in 1994. Harvest and hunter success increased slightly again in 1996 - 1999, but decreased slightly in 2000 – 2001. However, fall harvest levels continue to be below the levels observed in the mid-1980's.

2012: Wild turkey brood production in 2012 increased in Iowa compared to the previous years, with statistically significant increases in poults per hen and hens with broods observed (Fig. 2.5) in many part of the state. Fall turkey hunter success rates remained similar in 2012 from 2011 (Table 2.8), but still well below the 2005 and prior estimates due to the change in harvest estimation (mandatory versus postcard survey as discussed earlier). Since the IDNR's main objective for wild turkeys is to

maintain populations in all suitable habitats and provide high quality recreational opportunity, a conservative fall turkey hunting season was established in 1992. Shotgun license quota was reduced from 7,600 licenses available in 1990 to only 1,530 in 1992, 1993, and 1994. An increase in poult production was observed in 1994, and shotgun license quota was increased in 1995 to 3,450. Quotas were increased slightly again in 1996 to 3,850, to 4,550 in 1997, to 5,650 in 1998, to 6,225 in 1999. In 1999, zone 8 was created in north central Iowa and zone 6 was reduced east to Highway 63. All other zone boundaries remained the same as in 1998, and all zones had licenses available. In 2009, quotas were decreased. All zones except zone 8 & 9 decreased (zone 4 from 4,500 to 1,500, zone 5 from 700 to 650, zone 6 from 3,000 to 1,400, and zone 7 from 400 to 250). Shotgun/bow license issue (paid and free combined) increased in 2012 to 8,664 for the 47-day season that ran from 15 October through 30 November, 2012 (Table 2.12). Fourty-nine percent of the fall licenses were issued free to landowners. An additional 2,301 archery-only licenses were issued for a season that ran from 1 October through 30 November, 2012 and 17 December, 2012 through 10 January, 2013. Estimated numbers of active hunters were undeterminable since there was no post card survey after the season (mandatory reporting eliminated the post card survey). Only 10.1% of hunters reported harvesting a turkey, which was a large decrease from 2005, likely due to the mandatory reporting and low compliance rates (Table 2.8), but was similar to 2006-11 success rates. Hunter success rates varied from 13.6% in zones 5 and 7 to 21.3% in Zone 8 (Table 2.8). Archery only licensed hunters reported a harvest of 131 turkeys in 2012 which increased from the 2011 archery-only license harvest. The 5.7% success rate for 2012 archery only licenses was similar to the previous year's success rates for archery-only hunters (Table 2.8). Nonresidents have not been permitted to hunt fall turkeys in Iowa since 1990.

Discussion: Fall turkey hunting techniques are sufficiently different from spring hunting so that past experience with spring hunting seems to have little impact on success in the fall. If anything, reliance on camouflage, sitting still, and calling (the basic spring hunting method) may be less successful and less utilized than walking and flushing turkeys in the small woodlot situations which comprise the bulk of Iowa turkey habitat. Even though fall shotgun success rates are quite high, fall turkey hunting has not been popular. It doesn't seem to appeal to spring hunters and hunter numbers seem to be more related to zone size than anything else. Fall archery hunting has even fewer devotees.

In spite of these differences between spring and fall hunting, they have one important feature in common -- hunter concentrations on public hunting areas. Hunter densities are much greater on public hunting areas than on private lands. By the nature of fall hunting this has less impact on perceived interference between hunters than it does in spring hunting. Crowding leads to lower success rates on public areas and, on the largest most popular areas, there are some indications of excessive harvest over theoretically desirable levels. Any area that the IDNR intends to manage for quality spring hunting may have to be zoned separately in the fall.

Even in years of documented poor reproduction, hunters can still find turkeys due to Iowa's limited forest habitat and high turkey densities. Success rates are high for Iowa hunters when compared with surrounding states. Interference rates between hunters have not been documented in the fall since 1985. Interference rates

have been lower during fall than in spring, which is probably due to the different techniques used for spring and fall hunting.

Fall turkey hunter densities on public areas (that were surveyed) have been nearly 50 times greater than the average hunter density for private land. Turkey harvest densities on 13 of 16 public areas surveyed equaled or exceeded the theoretical maximum allowable harvest of 2 turkeys/mi^2 of forest as determined from empirical population data gathered from Stephens State Forest (IDNR, unpubl. data). In 1986, only 4 counties sustained > 4 hunters/mi^2 of forest, combined with turkey harvests of > 2/mi^2 of forest. In 1987, with the large increase in licenses issued, 12 counties had both hunter densities > 4, and turkey harvest > 2/mi^2 of timber (out of 43 counties with reporting hunters). The high seasonal hunter densities were somewhat reduced by a 28-day season during 1987. No more than 34% of the hunters and 39% of the eligible hunters (those who had not yet bagged a turkey) were afield on any day. The opening 2 days and 4 weekend days were the most popular hunting days. There were no evident relationships between daily hunting pressure and daily success rates. To reduce daily hunter densities, hunter interference rates and increase fall recreation days, the 1988 fall season was extended to 49 days (October 10 - November 27). However, a large increase in licenses issued in 1988 increased the number of counties exceeding allowable harvest and hunter density values to 16 (out of 53 counties with reported turkey harvest). Another record license issue in 1989 resulted in 24 counties (of 49 counties with reported turkey harvest) exceeding >4 hunters, and >2 turkeys harvested/mi^2 of timber. Fewer licenses were issued in 1990 and correspondingly only 16 counties exceeded hunter and harvest rate maximums. Due to continued poor brood production, both hunter numbers and harvest was dramatically reduced during 1991 - 1993 and increased only slightly throughout 1994-2000, but decreased slightly in 2001. Unfortunately, the present management concern is how to maintain turkey numbers instead of the enviable situation of being concerned about hunter densities.

The record number of active hunters in 2005 (since 1989) may be related to this being the first season that turkey hunters where allowed to use dogs. Likely, pheasant hunters took this opportunity to harvest turkeys opportunistically while pheasant hunting. With mandatory reporting system (initiated in 2006), active hunters numbers are undeterminable.

Brood Survey

History: Information on annual variations in turkey productivity is needed to evaluate the status of turkey populations in various regions of the state. Because few reliable wild turkey census techniques have been developed, hunter success rates, turkey harvest levels, and age ratios of harvested birds are the best available indicators of relative turkey populations between hunting zones. Lewis (1975a, b) found significant correlations between both August poult:hen ratios, percent juveniles in the harvest, and total gobbler harvests in the subsequent spring in Missouri, suggesting that an index to productivity would be useful in establishing hunting regulations.

Compared to the more formalized census procedures used for more visible wildlife species, indices to eastern wild turkey productivity are generally based on random observations of broods.

Methods: A list of cooperators has been established from IDNR personnel and rural residents living in selected portions of Iowa containing established turkey populations. All rural residents living in designated

survey areas are sent a form to be returned if they are willing to participate in the survey. Each cooperator is sent a return-addressed postcards which are completed and returned based on turkey broods sighted between 1 July and 31 August. Productivity indices are constructed from these returns.

Hanson (1988) compared the brood survey data with spring turkey harvest and data from a radio-telemetry study in southern Iowa. The poult: hen ratio (young/adult) was the variable that correlated best with the telemetry data. Results of additional analyses indicated that the brood survey did have some utility for forecasting turkey numbers available to the hunters in following springs. Additionally, Hanson concluded that in light of the correlations with harvest data the brood survey may also be useful for evaluating the status of turkey populations in various regions of the state. Survey statistics for 1976-2012 are summarized in Tables 2.9 and 2.10.

2012: Results from Iowa's 2012 summer wild turkey survey indicated a statewide increase in turkey reproduction from the previous year (Tables 2.9 & Table 2.10). In 2008, a new survey was developed that asked observers to also record toms seen, distinguishing them from hens. In previous years, observers were only asked to record hens observed. This may have influenced the percent of hens (Figure 2.10) observed with broods (i.e. observers may have recorded toms as turkeys/hens without broods in the past). It is unlikely that all regions increased in the percent of hens observed with broods with the weather conditions of 2008 (extremely wet with severe flooding). Thus, any interpretation on the brood survey should be limited to poults per hen and turkeys per flock in 2008.

In 2009, the brood survey used new regions (Figure 2.5) to analyze the data. To allow comparisons between years, 2008 was also analyzed using the new regions (Tables 2.9 & Table 2.10).

Statewide, the average number of hens observed with a brood increased by 20%, while the average number of poults observed per hen increased by 28% (Fig. 2.5). Regionally, north central, northeast, east central, and southwest Iowa all experienced a significant increase in turkey reproduction for both categories (hens observed with broods and number of poults per hens). All other regions except northwest & west central experienced increases in turkey reproduction, but they were not statistically significant (Fig. 2.5). Only Northwest Iowa experienced a significant decline in both categories between 2012 and 2011. The west central region appeared to have an increase in successful hens and a decrease in the number of poults observed with hens, but differences between years were not statistically significant (Fig. 2.5). Long range comparisons to previous years are difficult, since the survey methods changed in 2008, likely influencing the results in how the data was collected.

Dry weather patterns in the spring and summer of 2012 likely helped the large increases in turkey reproduction throughout most of the state. May rainfall was 50-75% below average in most of the state, with the exception of northwest Iowa, which experienced 150-200% increase in rainfall. June weather patterns continued to be dry, with nearly all the state experiencing 4 inches below normal rainfall (http://www.ncdc.noaa.gov/temp-and-precip/maps.php).

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Figure 2.1 Iowa spring turkey hunting statewide estimates, 1974-2013.

Active hunters unknown after 2006 due to survey changes.

Harvest estimation methods changed from mail surveys to mandatory reporting beginning 2007.

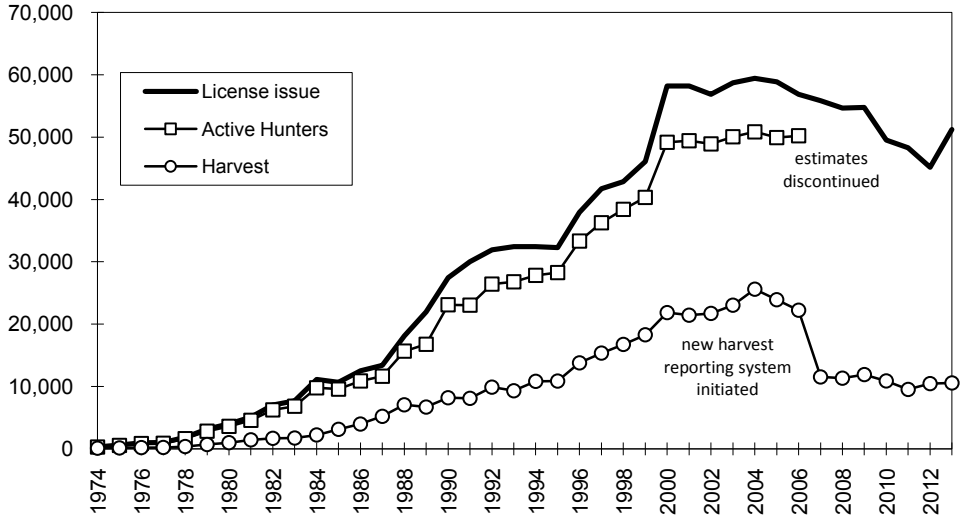


Figure 2.2 Spring turkey hunting zones, 1974 (Fig. a) and 2013 (Fig. b).

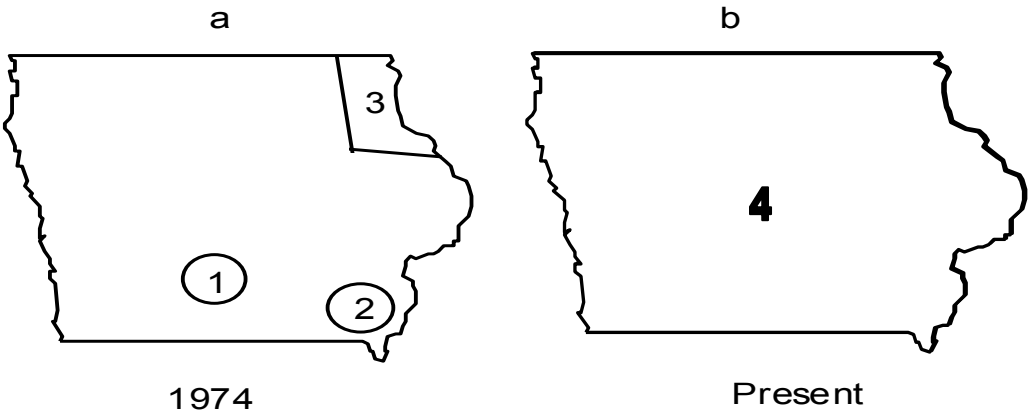


Figure 2.3 Iowa turkey harvest statewide success rates for residents, 1974-2013.

Sucsess estimation methods changed from mail surveys to mandatory reporting beginning Fall 2006.

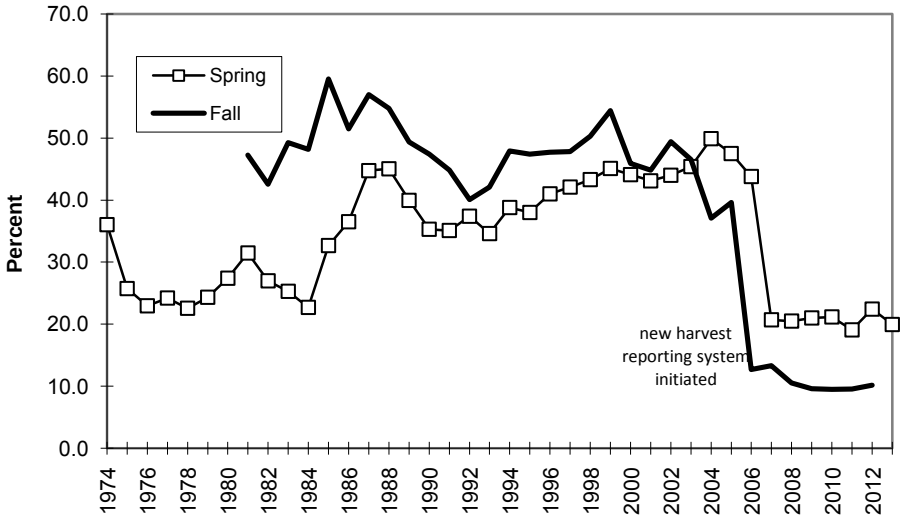


Figure 2.4 Iowa turkey brood survey statewide results, 1976-2012.

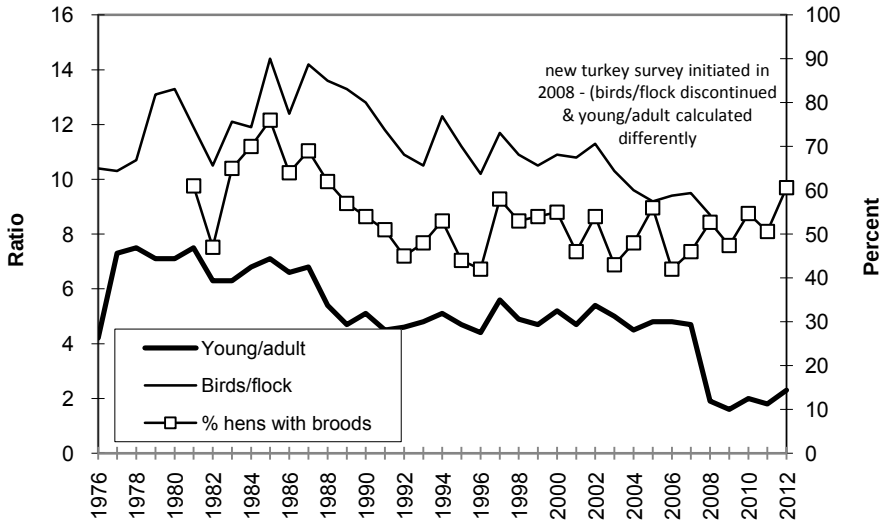
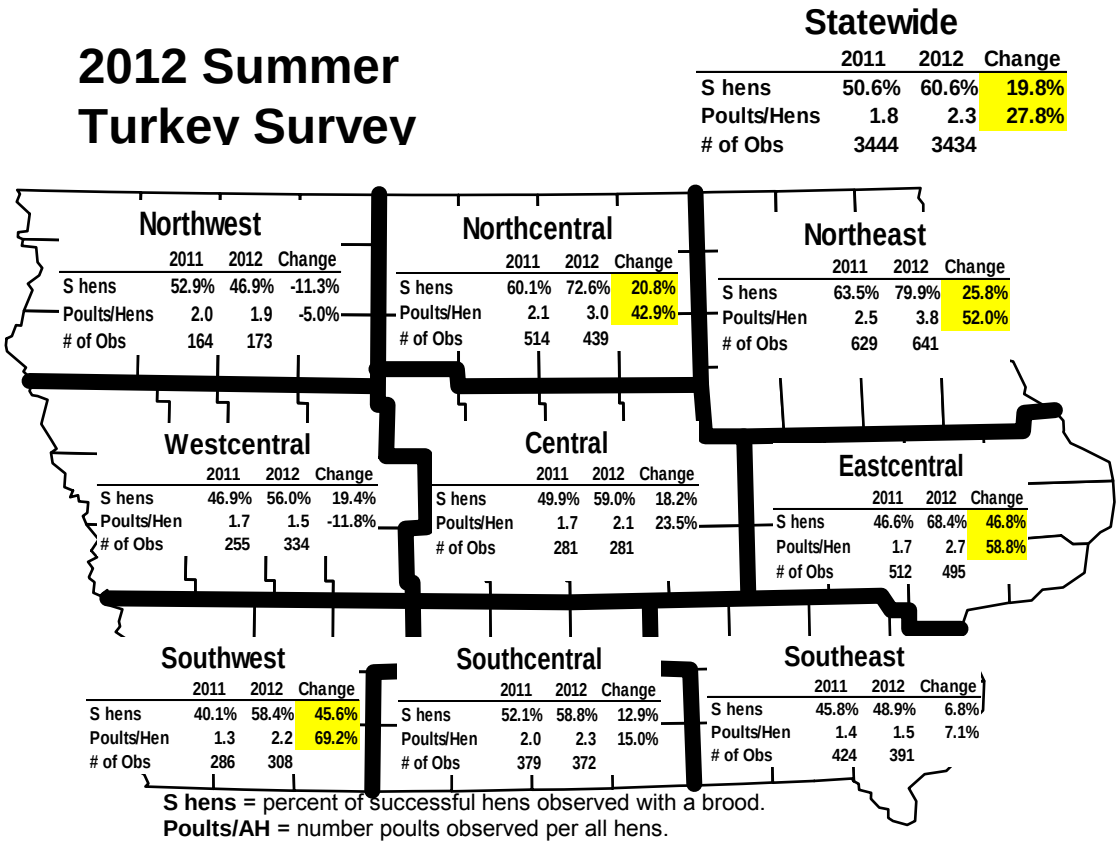


Figure 2.5 Iowa Summer Turkey Survey results, 2012.



S hens = percent of successful hens observed with a brood.
Poults/AH = number poults observed per all hens.
# of Obs = number times turkeys were observed by cooperators.
Percent change highlighted if statistically significant

Figure 2.6 Fall turkey hunting z

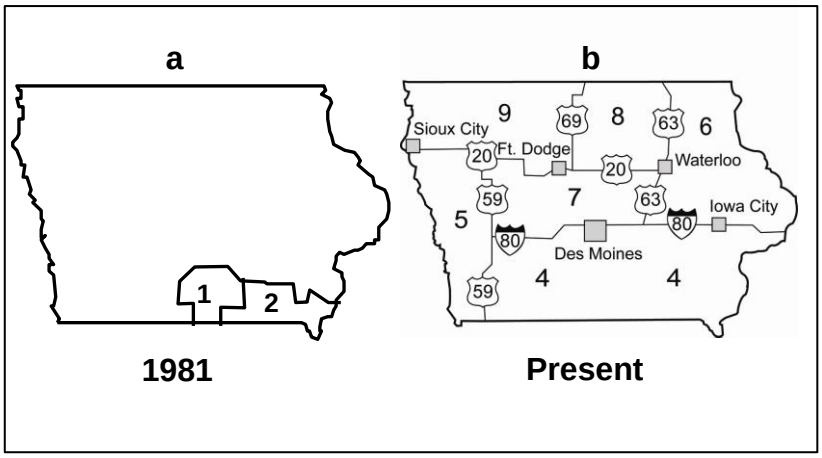


Figure 2.7 Iowa fall turkey hunting statewide estimates, 1981-2012.

Active hunters unknown after 2005 due to survey changes.

Sucsess estimation methods changed from mail surveys to mandatory reporting beginning 2006.

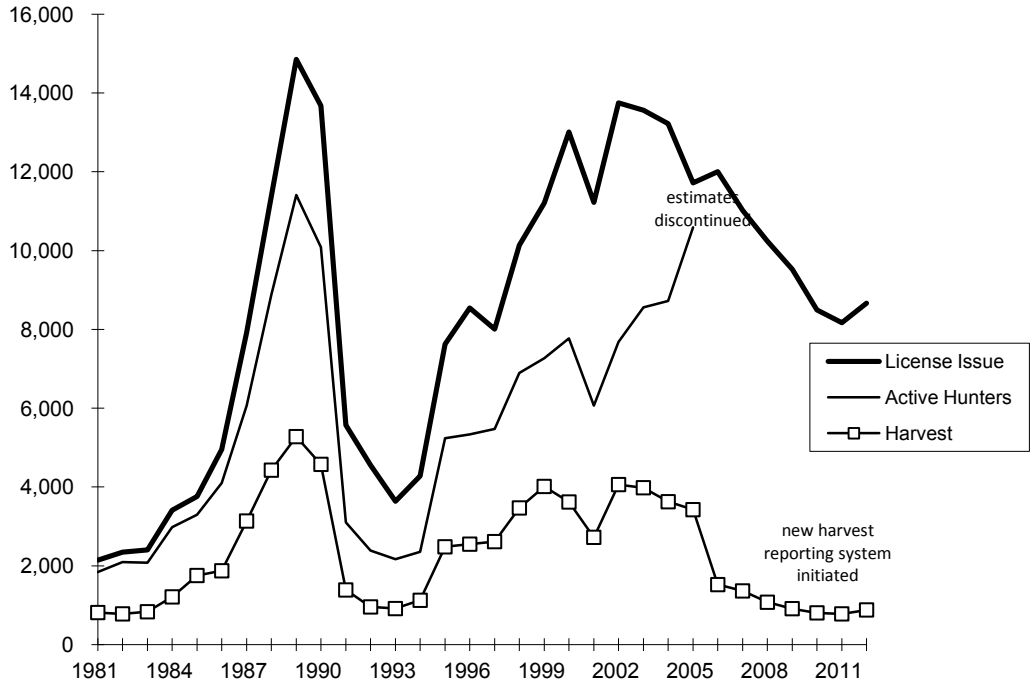
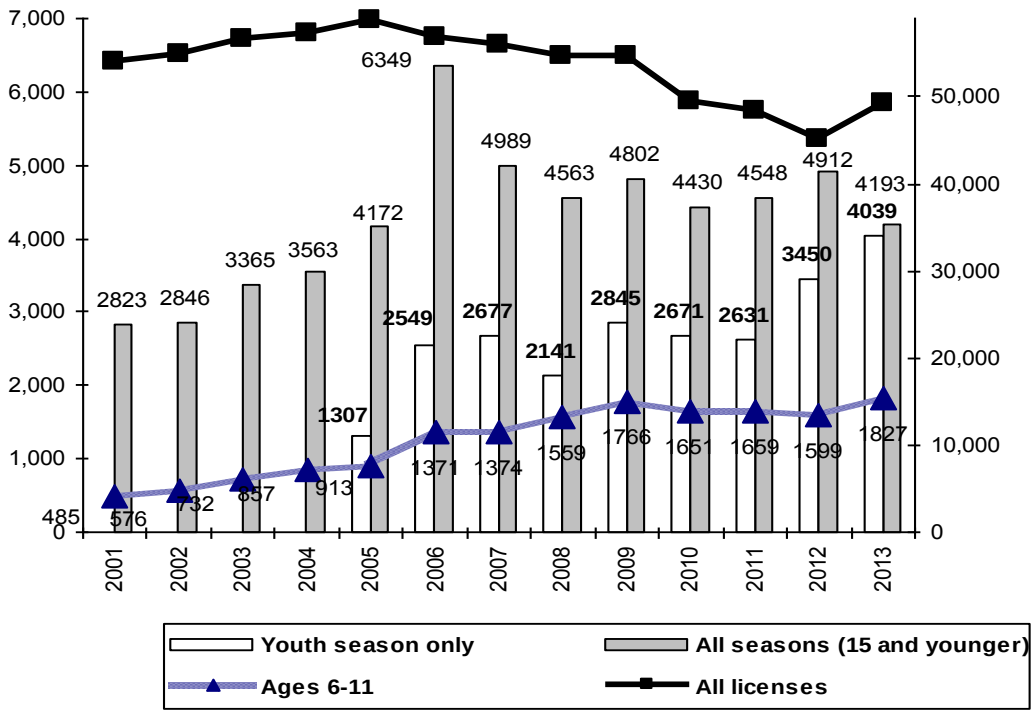
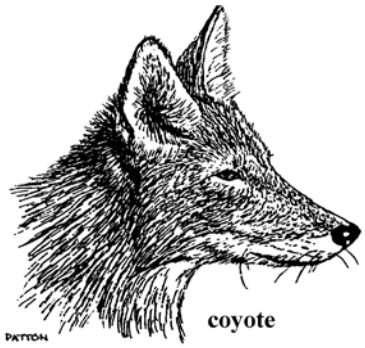


Figure 2.8 Iowa spring turkey license issue, 2001-2013.



FURBEARERS



Introduction

Iowa supports a wide diversity of native furbearer species including badger (*Taxidea taxus*), beaver (*Castor canadensis*), bobcat (*Lynx rufus*), coyote (*Canis latrans*), mink (*Mustela vison*), muskrat (*Ondatra zibethicus*), opossum (*Didelphis virginiana*), river otter (*Lutra canadensis*), raccoon (*Procyon lotor*), striped (*Mephitis mephitis*) and spotted (*Spilogle putorius*) skunk, red (*Vulpes vulpes*) and gray (*Urocyon cinereoargenteus*) fox, and weasel (*Mustela* spp.). Data regarding population trends for these species is important for effectively evaluating management efforts and the status of furbearer species, statewide. Long-term population data for many furbearer species is difficult to obtain and often lacking at a landscape-scale. However, data such as harvest, road-kill, the bowhunter survey, and spotlight survey indices have shown positive correlations with changes in population abundance for many of these species. The Iowa Department of Natural Resources (DNR) monitors population trends of Iowa furbearer species through the use of 1) annual furharvest reports, 2) April spotlight surveys, and 3) the Iowa Bowhunter Observation Survey.

Each year since 1930, the Iowa DNR collected harvest data for furbearer species from licensed fur dealers in Iowa. According to Iowa Code 109.97, every licensed fur dealer is required to report the total number of furs purchased per species from Iowa trappers and hunters by 15 May, annually. Although harvest data may only indicate a trend in population abundance, long-term harvest information provides a retrospective view of the status of various furbearer populations over time. Furthermore, in 1975, in response to debates regarding trapper verse hunter access to furbearer resources in the state, the Iowa DNR required licensed fur dealers to report the percent of raccoon, fox, and coyote pelts purchased from trappers and hunters, respectively. These data are useful in determining the impact of each harvest method on furbearer populations and the impact of weather on total harvest per species.

In 1978, the Iowa DNR began annual, statewide April spotlight surveys for raccoons and white-tailed deer (*Odocoileus virginianus*). Since 1978, the average raccoon harvest in Iowa has equaled or exceeded the average total harvest of all other furbearer species combined. Raccoon pelt values compose a significant portion of the total harvest value in Iowa each year. Thus, the April spotlight survey provides additional and useful data for managing this highly important furbearer species in the state.

Population trend data for furbearer species have also been gathered annually since 2004 through the Iowa Bowhunter Observation Survey. Avid archers were identified *a priori* for survey and provided

statewide observation data for Iowa furbearers during which more than 100,000 observation hours occur annually. Archers were considered ideal for collecting observation data because 1) avid archers may be considered experts at stand placement and concealment from wildlife, 2) avid archers are knowledgeable regarding species identification, 3) avid archers spend a great amount of time in-field each year, and 4) stand hunting methods for observing white-tailed deer lend well to observation of many furbearer species. Although this dataset is relatively new, it provides a repeatable and potentially long-term survey method for supplementing annual furharvest data.

Historic Furbearer Harvest

Prior to the 20th century, beaver furs were one of the most desired pelts on the market due to their thickness, durability, and warmth. However, because of high demand, beavers were overharvested around much of the world, even to extinction in Europe. In Iowa, beaver were extirpated by the turn of the century and populations were closed to harvest, statewide.

At the turn of the century, skunk furs were in high demand, worldwide. The fur trade was thriving as a result of increased visibility of actresses wearing furs and the high social status associated with fur products. However, in the 1930s, the market for skunk furs declined in response to demand for fox furs by the European fashion industry. During the 1930s, muskrat, mink, skunk, and opossum composed the largest proportion of total furbearer harvest in Iowa (Figure 3.1). By the end of the 1930s, the total skunk harvest in Iowa began to decline where as the red and gray fox harvests were growing.

In the 1930s and 1940s, the Iowa Conservation Commission (currently the Iowa DNR) initiated a beaver reintroduction program in Iowa. Beavers were live captured and transplanted throughout the state and by 1943, the harvest season for beaver was reopened. During the 1943-44 season, the total furharvest in the state reached an all-time high and 235 beavers were harvested (Figure 3.2).

By the mid to late 1940s in Iowa, muskrat, mink, red and gray fox, striped and spotted skunk, opossum, coyote, and weasel harvests all faced dramatic declines in response to World War II (WWII). Within 5 years, total harvest collapsed from an all-time high of 418,484 to an all-time low of 135,108. Twelve species composed the total harvests in the early 1940s but during the 1947-48 season, only muskrat, mink, striped and spotted skunk, red and gray fox, and raccoon were reported.

Following WWII, the fur market continued to depreciate as the production cost for labor-intensive fur products exceeded fur values and the need for fur products was replaced by the development of central heating. Society began viewing fur products as a trend characteristic of the previous generation and the demand for fox furs on the European market declined. Mink products, however, were viewed more favorably by the high class resulting in increased demand compared with previous decades (Table 3.1).

Although demand was high, mink harvests in Iowa declined sharply in the early 1950s and remained low as a result of extended drought in the region and overall low mink prices, worldwide. Muskrat, striped and spotted skunk, red and gray fox, coyote, opossum, badger, and weasel also faced dramatic harvest crashes; composing less than 5% of the total harvest during the

decade. Ultimately, raccoon and muskrat harvests remained stable and composed the greatest proportion of the total harvest in the 1950s.

During the 1960s, total harvest increased and relatively stabilized in Iowa. Beaver populations had continued to recover with stable harvests averaging 6,800. Beginning in the early 1970s, raccoon, mink, red and gray fox, coyote, opossum, and badger all saw increased harvests. Striped skunk harvest had remained well below the 1930 average during the previous two decades but also showed stable, yet small recovery. By the 1979-80 season, record total harvests topped 1 million (1,146,311) in Iowa for the first time in recorded history.

Although record furbearer harvests were achieved in the 1970s, spotted skunk populations struggled. Reports from the 1940s indicated that spotted skunk were common in portions of Iowa but by the 1970s, they were considered rare in the state. In 1976, the spotted skunk harvest season was closed, statewide, and the species was ultimately classified as an endangered species in Iowa. Throughout the 1970s and 1980s, the Iowa DNR received only 1 or 2 spotted skunk reports per year.

In the late 1970s and early 1980s, anti-furharvest groups formed and began protesting the development of fur products in the United States. Advertisements and celebrity endorsements were used to build public support against the fur trade. Demand for furs in North America subsequently declined although the fur market in Europe remained less affected.

Throughout the early and mid-1980s, total furharvest in Iowa remained relatively strong. However, by the late 1980s, Iowa experienced extreme drought conditions. When combined with a weak global fur market, statewide harvests for all species crashed. Total reported harvest decreased by 450% in a 4-year period; reaching as low as 216,874 by 1990-91.

Total reported furharvest in Iowa remained low, stabilizing around 275,000 through the 1990s and early 2000s. Total harvest was primarily composed of raccoon and muskrat, as well as beaver, coyote, opossum, red fox, and mink in lower proportions (Figure 3.3). Harvest in the late 2000s steadily declined in response to 5 consecutive harsh winters. By 2010-11, harvest rebounded for all species except weasels (which had not composed a significant portion of the total harvest since the 1930s). Total reported furharvest during the 2010-11 season increased to 368,856 but remained below the long-term average (457,878). In 2011-12, the total furharvest rebounded further (448,296) but continued to remain shy of the long-term average. In 2012-13, the total furharvest declined (365,395) from the previous year (Table 3.4). Drought and a significant distemper outbreak in raccoons in some parts of the state were the two most likely factors that contributed to this decline.

Number of Licensed Furharvesters

The average number of licensed furharvesters in Iowa fluctuates with current fur markets. Generally, as fur prices increase, the number of furharvesters in the state increases in subsequent years, and vise versa (Figure 3.4). In 2012, the number of licensed furharvesters in Iowa reached another 10-year high of 19,268, which is up from 2011 (17,049). This was likely in response to the increased fur market projections for the year (Table 3.2).

In 2013, the fur market outlook remains strong and is projected to grow further.

Over the past 10 years, the number of licensed fur dealers in Iowa has slightly decreased from 51 in 2001 to 40 in 2012 (Table 3.2). The number of licensed fur dealers does not appear to be affected by the value of the total harvest in Iowa. However, the currently strong fur market may stabilize or slightly increase the number of furbuyers in Iowa.

Current Fur Market in Iowa

The current fur market continues to strengthen as it has the past three years. Demand is still primarily out of Russia, China, and Korea, with several other smaller countries buying more fur. Fur market recovery has been slow, yet fairly steady and primarily limited by the European economy and the lack of a mass production capacity for fur products. High quality furs are again prized in the fashion/style industry. Overall, the market outlook is positive. Prices for muskrat, bobcat, raccoon, mink, coyote, red fox, beaver, and otter are expected to remain stable to rising in 2013. Muskrat prices should remain solid, although below those of other important species, it is quite high for muskrat. Demand for striped skunk and weasel has slowly declined over recent years and may continue that trend in the following year.

In 2012-13, furbearer prices and number of pelts sold in Iowa followed current furbearer market trends. Average pelt prices increased for all species except weasel, while the total number of pelts sold decreased. Muskrat, raccoon, mink, skunk, beaver, and gray fox harvests were down from the previous year, primarily from the dry conditions found throughout most of the state in 2012 (Table 3.3). The number of pelts sold did increase from the previous year for some of our upland species: coyotes, red foxes, badgers, and weasels (Table 3.3).

Red fox, mink, muskrat, and raccoon prices in 2012 were above the 5-year and long-term averages (Table 3.1). Gray fox and badger average pelt prices increased fairly substantially from the previous year (Table 3.3)

2012-13 Furharvest Season in Iowa

Annual and long-term weather events significantly impact furbearer populations and harvest success in Iowa. Precipitation, water levels in wetlands and waterways, and time of freeze all affect aquatic furbearer harvests especially and trapping effort throughout the state. Muskrat and beaver populations are cyclic and historically shown to fluctuate following wet/dry periods; resulting in fluctuating annual harvests.

Terrestrial furbearer harvests are impacted by the severity of winters, level of snow cover, and the duration of extreme temperatures. The severity of harsh winter weather has also shown to limit hunter and trapper effort in some years. Typically, trapping and raccoon hunting success is greater during mild winters in which snow cover is minimal. Inversely, hunter success harvesting coyote and fox increases during years of extended snow cover. Ultimately, consideration of annual weather is important for analyzing harvest trends and developing sound management strategies for furbearers in Iowa.

The fall and first half of winter in 2012-13 were fairly mild and uneventful in terms of precipiation. Average temperatures

were 4.3, 4.8, and 3.7º F above normal for November and December, 2012, and January, 2013, respectively. Snowfall was below the long-term normal in November (-2.5 in.) and above normal in December (+6.5 in.) with January snowfall slightly below normal (- 1.0 in.), respectively. Snowfall levels varied significantly around the state which is not unusual. It is also worth mentioning that snowfall increased and average temperatures dropped in February and March 2013 resulting in a cold wet spring.

Very dry conditions (drought) persisted through November during the 2012 furharvest season resulting in fair to poor furbearer trapping conditions statewide. Mild weather did allow furharvesters to stay in the field well into December and maintain trapping sets in good condition. The total harvest for raccoon, red fox, coyote, opossum, badger, and beaver were all above their 5-year averages. The gray fox harvest for 2012-13 was under 100 again for the 4th straight year which is cause for concern about their population level statewide (Table 3.4). Regional (Midwest) research has been initiated on this matter to help answer questions. Additionally, the percent of pelts purchased from trappers by Iowa fur dealers was than hunters was higher for raccoon, and fox, but hunters harvested more coyotes than trappers in 2012-13 (Table 3.5).

The total number of coyote harvested and the percent of total harvest taken by hunters during the 2012-13 season were higher than in 2011-12. Cold weather and snow cover are more favorable for hunting coyote than mild winter conditions and likely resulted in the higher 2012-13 hunter harvest in comparison to the previous season.

Raccoon

Raccoon harvest in the 1930s was relatively low and comprised only 3% of the total harvest (Figure 3.6). By the mid to late 1940s, raccoon harvests had tripled; comprising a significant portion of the total harvest (14%) for the first time. Harvests steadily increase throughout the next two decades but remained relatively low until the early 1970s. During the 1970-71 season, raccoon harvest totaled approximately 94,000. By 1974, raccoon harvests had boomed, experiencing a 300% increase to 292,064. Although harvests had averaged nearly 100,000 for the previous 2 decades, populations were steadily increasing. High harvest rates likely minimized disease outbreaks such as distemper, helping to maintain healthy populations. By the 1986-87 season, harvests reached a current, all-time high of 390,773. However, within 3 years, harvests crashed to 103,468 (a 378% decline) as a result of poor market prices and regional drought. Average harvest throughout the 1990s and mid-2000s remained around 129,000. In 2010-2011, harvests again peaked to 236,943, well above the 5-year (189,344) and long-term (122,395) averages.

In 2011-12, the raccoon harvest reached a 25-year high of 326,368; a number similar to the high harvests recorded during the 1980s, but harvest declined 16% for 2012 due to drought and distemper (Table 3.4). Trapping and hunting season dates (3 Nov-31 Jan), daily bag limits (no limit), and possession limits (no limit) remained the same (Table 3.6). The average raccoon pelt price in Iowa was $13.60 ($8.32-30.00), which was higher than the 2011-12 price ($10.86; Figure 3.7; Table 3.3). Trapping accounted for 69% of the total harvest, up slightly from the previous season (Table

3.5). Coon hunting accounted for 31% of the total harvest.

The 2012 Iowa Bowhunter Observation Survey indicated that statewide populations declined throughout most of the state from the previous two years (Figure 3.8). Yet the 2013 April spotlight surveys indicated the overall statewide populations have slightly increased from the previous year and exceeded the 5-year average (Figure 3.9; Table 3.7). However, county by county April spotlight surveys also showed results varied with declines primarily from the previous year in central and north-central Iowa (Figure 4.1). This correlated with several field reports from those regions of Iowa of distemper outbreaks the previous Fall. Coon numbers in these regions are expected to rebound this upcoming year.

Muskrat

Since the 1930s, muskrat consistently composed the greatest proportion of the total annual harvest in Iowa. Average pelt prices have remained consistently low compared with species such as raccoon, mink, and red fox (Table 3.1). However, because of the high muskrat population in the state and high rate of harvest over time, muskrat furs have averaged 25% of the total harvest value in recorded history.

Fluctuations in the total annual furbearer harvest have primarily been due to the cyclic behavior of muskrat populations (Figure 3.2). Historic muskrat populations in Iowa fluctuated greatly following wet and dry periods. Droughts in the 1930s, 1950s, and late 1980s suppressed muskrat populations in the state. However, in subsequent wet years, populations quickly rebounded due to the prolific reproductive capacity of the species.

In 1979-80, muskrat harvest in Iowa reached a current, all-time high of 741,403 (Figure 4.2). Harvests varied throughout the early and mid-1980s but by the 1987-88 season, extreme drought, poor wetland conditions, and a suppressed fur market resulted in significantly depressed populations and a 30-year-low harvest. Excessive precipitation and flooding in 1993 improved habitat and by the mid-1990s, populations had steadily rebounded. In the late 1990s, wetland conditions began to deteriorate as increasing/stable, high water levels degraded marsh vegetation and habitat. Harvests again declined to pre-1993 levels and remained low; averaging 68,500 through the 2000s. In 2010-11, the muskrat harvest was 2.2-times higher than the previous season's harvest and reached a decade high of 98,079.

In 2012-13, the muskrat harvest was 49,849, which was a decrease from the previous season (Table 3.4). Drought conditions in 2011 and 2012 significantly decreased water levels in wetlands and subsequently suppressed muskrat populations and total harvest. Trapping season dates (3 Nov-31 Jan), daily bag limits (no limit), and possession limits (no limit) remained similar to those in 2011-12 (Table 3.6). The average muskrat pelt price in Iowa was $7.48 ($4.22-11.00), which was higher than the 2011-12 price ($5.93; Figure 4.3; Table 3.3).

Excessive statewide drought during 2012 was largely eliminated in the spring 2013 by heavy rains which filled or flooded several waterbodies throughout the entire state. However, by late summer 2013, most wetlands and marshes have again experienced low or completely dry conditions, creating unfavorable trapping conditions. The 2013-14 harvest is expected

to be equal to or slightly more than the previous year's harvest.

Coyote

Coyote harvest in the 1930s was nearly non-existent in Iowa and totaled only 517 animals throughout the entire decade (Figure 4.4). Harvests increased in the 1940s and averaged 374 per year, but by the 1950s, had once again dropped off. Through the 1950s and 1960s, harvests averaged fewer than 75 animals per year with annual harvests as low as 10 per year. Beginning in the 1968-69 season, coyote harvests boomed and by 1976-77, reached a current, all-time high of 12,226. Since the late 1970s, harvests have steadily decreased in the state but remained high in comparison to previous decades. Except for a dramatic decline in the late 1980s, harvests through the late 2000s averaged 6,800, well above the long-term average (4,207). In 2009-10, harvests dipped below the long-term average but quickly rebounded to a 7-year high of 8,089 during the 2010-11 season.

In 2012-13, the coyote harvest was 12,007, which was a significant increase from the previous season and well above recent and long-term averages (Table 3.4). The regular trapping and hunting season dates (3 Nov-31 Jan), daily bag limits (no limit), and possession limits (no limit) remained similar to those in 2011-12 (Table 3.6) with the coyote season open year round. The average coyote pelt price in Iowa was $15.93 ($5.00-55.00), which was also higher than the 2011-12 price ($12.08; Table 3.3). Trapping accounted for 47% of the total harvest which was a slight increase from the previous season (Table 3.5). The increase was likely due to increased trapper success resulting from mild winter conditions and high population level. Hunting accounted for 53% of the total harvest. Ideal hunting conditions mainly occurred in January and February with significant snowfall to portions of the state.

The 2012 Iowa Bowhunter Observation Survey indicated that statewide populations increased throughout central and western portions and remained relatively stable in eastern portions of the state (Figure 4.5). Statewide, coyote populations from 2010 to 2012 appear to be remaining quite high for many regions of the state, especially the southwest. There was a slight increase in the number of reports from the public of emboldened coyotes trailing joggers or harassing pets in 2012, however it is difficult to confirm these reports.

Red Fox

Red fox harvests through the mid-1940s averaged approximately 6,900 in Iowa (Figure 4.6). Steady declines throughout the late 1940s and 1950s resulted in an all-time low harvest of 1,147 during the 1958-59 season. Harvest numbers rebounded in the 1960s and in the 1968-69 season, reached a current, all-time high of 27,661. Harvests fluctuated sharply throughout the next two decades but remained high, averaging 19,000 through the mid-1980s. In the late 1980s, red fox harvests began a steady declined and since the 2004-05 season, remained below the long-term average of 10,631.

In addition to depressed fur markets in the 1980s, recent red fox population declines in Iowa have been attributed to two occurrences. Since the early 1980s, mange has remained persistent in red fox populations and suppressed population recovery in the state. Furthermore, high coyote populations have resulted in encroachment on areas historically

considered red fox habitat, increased competition for food and den sites, and increased predation by coyotes.

In 2012-13, the red fox harvest was 3,742, which was a slight decrease from the previous season (Table 3.4). The 2012-13 harvest was just above the 5-year average but below the long-term average. Trapping and hunting season dates (3 Nov-31 Jan), daily bag limits (no limit), and possession limits (no limit) remained similar to those in 2011-12 (Table 3.6). The average red fox pelt price in Iowa was $25.85 ($14.00-60.00), which was higher than the 2011-12 price ($17.74; Figure 4.7; Table 3.3). Trapping accounted for 80% of the total harvest (red and gray fox), which was a slight increase from the previous season (Table 3.5). The increase was likely due to increased trapper success resulting from mild winter conditions well into December. Hunting accounted for 20% of the total harvest (red and gray fox).

The 2012 Iowa Bowhunter Observation Survey indicated that populations in northern and central Iowa have slightly increased but still at relatively low numbers since 2004 (Figure 4.8). Populations in western and southeast Iowa may have significantly decreased since the mid-2000s, although observations indicate that numbers are similar to those recorded in other regions of the state.

Gray Fox

Gray fox harvests in Iowa have followed similar trends to those of red fox, although historically, populations have existed at significantly lower numbers (Figure 4.9). During the 1930s and 1940s, harvests averaged around 1,300. Gray fox harvests dropped to below 1,000 in the late 1940s and remained low until the early 1970s. Harvests steadily increased and during the 1979-80 season, reached a current, all-time high of 3,093. Where as red fox harvests remained high throughout the 1980s, gray fox harvests have since dramatically declined. Since 1996-97, gray fox harvests have remained below their long-term average of 866. In 2009-10, gray fox harvests reached an all-time low of 13 in Iowa.

In 2012-13, the gray fox harvest was 56, which was lower than the previous season's harvest and below the recent and long-term averages (Table 3.4). Trapping and hunting season dates (3 Nov-31 Jan), daily bag limits (no limit), and possession limits (no limit) remained similar to those in 2011-12 (Table 3.6). The average gray fox pelt price in Iowa was $27.01 ($15.00-65.00), which was higher than the 2011-12 price ($15.04; Table 3.3). Trapping accounted for 80% of the total harvest (red and gray fox), which was an increase from the previous season (Table 3.5). The increase was likely due to increased trapper success resulting from mild winter conditions well into December. Hunting accounted for 20% of the total harvest (red and gray fox), which was a slight increase from the previous season.

The 2012 Iowa Bowhunter Observation Survey indicated that populations in northern and central Iowa have remained stable and at relatively low numbers since 2004 (Figure 5.0). Observations in southeast Iowa showed trends similar to those of red fox and indicated that populations may have significantly decreased since the mid-2000s. Statewide, gray fox populations appeared highest in the south-central and southeastern regions and low in all other regions in 2011. Recent research has been initiated in the

Midwest to study the factors for the dramatic decline in gray fox numbers.

Beaver

By the early 20th century, beaver were extirpated from Iowa. Harvests seasons remained closed throughout the 1930s and early 1940s while a statewide translocation and reintroduction program occurred. In 1943, the beaver harvest season was reopened and 235 were harvested (Figure 5.1). Beaver harvests averaged 450 through the late 1940s and by the early 1950s, began a steady upward trend. Harvests reached a current, all-time high of 18,459 during the 1988-89 season. Harvests declined in the early 1990s although quickly stabilized, averaging 10,800 through the early 2000s. Harvests progressively declined in the 2000s and dropped below the long-term average (7,085) during the 2004-05 and 2006-07 through 2010-11 seasons.

In 2011-12, the beaver harvest reached an 18-year high of 11,652; a number similar to the high harvests recorded during the 1990s (Table 3.4). The harvest in 2012-13 declined slightly to 10,861. Trapping season dates were were similar to the previous year, with the season extended two weeks in April (3 Nov-15 Apr) and daily bag (no limit) and possession (no limit) limits remained unchanged from 2011-12 (Table 3.6). The beaver trapping season was extended from April 1st back to April 15th in the spring of 2012. The 2012-13 average beaver pelt price in Iowa was $13.66 ($7.00-30.00), which was higher than the 2011-12 price ($11.46; Table 3.3).

Mink

The proportion of mink in the total Iowa fur harvest has remained relatively constant since the 1930s. Mink harvests reached a current, all-time high of 60,397 during the 1946-47 season as a result of a sudden increase in value from the previous season ($6.75 to $28.16 per pelt). During World War II, European demand for furs collapsed and within 2 seasons, Iowa mink harvests dramatically fell to 16,571. Mink harvests stabilized in the early 1950s and averaged around 16,000 through the next 4 decades. Since the mid-1990s, mink harvests have remained below the long-term average. Harvests in the early and mid-2000s showed steady decline although in 2010-11, topped the 5- and 10-year averages at 11,262.

The 2012-13 mink harvest was 7,609, which was a significant decrease from the previous season (Table 3.4). The 2012 harvest was below the 5- and 10-year averages, and well below the long-term average (Figure 5.2). Dry weather conditions were likely the main reason for the lower harvest for mink. The trapping season dates (3 Nov-31 Jan) and daily bag (no limit) and possession (no limit) limits remained similar to those in 2011-12 (Table 3.6). The average mink pelt price in Iowa was $15.91 ($9.20-29.00), which was higher than the 2011-12 price ($12.62; Figure 5.3; Table 3.3).

Opossum

During the 1933-34 harvest season, the opossum harvest reached a current, all-time high of 83,625 (Figure 5.4). In the preceding and following years, harvests more typically averaged around 30,000. In the late 1940s, harvests significantly declined, reaching an all-time low of 953 in 1958-59. Opossum harvests remained

below 10,000 until the early 1970s, when harvests again reached numbers comparable to those seen in the mid-1930s and early 1940s. In the late 1980s, harvests crashed and remained below the long-term average (14,549) throughout the 1990s and 2000s. In 2010-11, harvests improved to 3,156, surpassing the previous 5-year average of 2,871.

The 2012-13 opossum harvest was 4,548, which was a slight increase from the previous season (Table 3.4). The 2012-13 harvest was above the 5- and 10-year averages but below the long-term average. Trapping and hunting season dates (3 Nov-31 Jan), daily bag limits (no limit), and possession limits (no limit) remained similar to those in 2011-12 (Table 3.6). The average opossum pelt price in Iowa was $1.25 ($0.50-4.00), which was slightly higher than the 2011-12 price ($1.00; Table 3.3).

The 2012 Iowa Bowhunter Observation Survey indicated that statewide populations peaked in 2005 or 2006 and steadily declined in recent years (Figure 5.5). Populations stabilized in the late 2000s and remained low in the northern and central portions of the state, and relatively high in southern portions of the state. Observations in 2012 indicated that populations increased slightly throughout most portions of the state.

Badger

Although an all-time low badger harvest occurred in 1932-33 (17), stable harvests averaging 450 per year were recorded from the mid-1930s until the mid-1940s (Figure 5.6). Harvests declined in subsequent years and averaged below 100 throughout the 1950s. By the late 1960s, badger harvests reached levels comparable to those recorded in the early 1940s. In the 1970s, harvest rates boomed in Iowa, reaching an all-time high of 3,274 during the 1979-80 season. Harvests remained high throughout the 1980s but ultimately crashed to below 500 by the early 1990s. Harvests fluctuated around the long-term average (670) throughout the 1990s and 2000s and in 2010-11, reached a 22-year high of 946.

In 2012-13, the badger harvest reached a 25-year high of 1,293; a number similar to the harvests reported in the mid-1970s and mid-1980s (Table 3.4). The 2012 harvest was above recent and long-term averages in Iowa. Trapping and hunting season dates (3 Nov-31 Jan), daily bag limits (no limit), and possession limits (no limit) remained similar to those in 2011-12 (Table 3.6). The average badger pelt price in Iowa was $15.24 ($4.00-50.00), which was slightly higher than the 2011-12 price ($11.73; Table 3.3).

The 2012 Iowa Bowhunter Observation Survey indicated that populations have remained fairly stable throughout most of the central and eastern portions of the state (Figure 5.7). Populations in southeast Iowa have declined since the mid-2000s and remained low in 2012. Populations in southwest Iowa have remained significantly higher than the remainder of the state, although at slightly lower numbers in 2012.

Spotted Skunk

Spotted skunk (also called civet cat) was proportionally one of the top 4 most harvested furbearer species throughout the 1930s in Iowa. In 1933-34, an all-time record 88,532 were harvested (Figure 5.8). In 1946-47, the spotted skunk harvest crashed, although similar trends were recorded for most furbearer species in the

state (Table 3.4). Harvests stabilized around 1,700 in the 1950s and remained low throughout the decade. Many furbearer species began to show improvements in harvest numbers by the mid-1960s, but spotted skunk populations began a further decline. In 1976, the spotted skunk harvest season was closed and the species was classified as an endangered species in Iowa. During the 1970s and 1980s, 1-2 spotted skunk sightings were reported to the Iowa DNR per year. Since 1992, the only reported sighting in the state was a road kill individual in Ringgold County in southwest Iowa. Currently, spotted skunk are likely extirpated from the state. This is likely due to habitat changes and changes in farming practices.

Striped Skunk

Striped skunk was proportionally the second most harvested furbearer species during the 1930s in Iowa. In 1936-37, an all-time record harvest of 153,497 was reported, although over the subsequent decade, harvest numbers steadily declined (Figure 5.9). By the early 1950s, harvests dropped below 10,000 and over the past 20 years, have averaged below 1,000.

In 2012-13, the striped skunk harvest was 763, which was a slight decrease from the previous season (Table 3.4). The 2012 harvest was slightly below the 5-year average (836) and significantly below the long-term average (1,578). Trapping and hunting season dates (3 Nov-31 Jan), daily bag limits (no limit), and possession limits (no limit) remained similar to those in 2011-12 (Table 3.6). The average striped skunk pelt price in Iowa was $2.61 ($0.50-7.00), which was up slightly from the 2011-12 price ($2.20; Table 3.3).

The 2012 Iowa Bowhunter Observation Survey indicated that populations remained relatively stable throughout western and northwest portions of the state and decreased in most all of the other regions of the state during 2012 (Figure 6.0). Populations have been high in western and south-central portions of the state and relatively lower in central and eastern portions since the mid-2000s. Although the observation survey indicates that decent numbers exist in Iowa, low market prices for skunk furs likely have kept harvest low in comparison to species (e.g., badger) which remain at low population numbers yet produce relatively high harvests due to good fur prices.

Weasel

Weasel harvests during the 1930s and 1940s were characterized by dramatic fluctuations (Figure 6.1). In 1936-37, just 4 years following a decade low harvest of 256, weasel harvests reached a current, all-time high of 7,190. Harvests averaged 4,400 in the early and mid-1940s but by the mid-1950s, had dropped below 500 per year. Weasel harvests steadily decreased during the next 3 decades and in 1976, the harvest season was closed in Iowa. In 1987, the weasel harvest season was once again reopened, although the first reported harvested weasels did not occur until 2009-10. Harvests in 2009-10 and 2010-11 were 56 and 7, respectively, characteristic of the low harvests numbers reported throughout the 1960s and 1970s.

In 2012-13, the weasel harvest was 30 animals (Table 3.4). Although in should be noted that trappers keep a some of their weasel pelts and don't sell them. Trapping season dates (3 Nov-31 Jan) and daily bag (no limit) and possession (no limit) limits

remained similar to those in 2011-12 (Table 3.6). The average weasel pelt price in Iowa was $2.12 ($2.00-2.36), which was lower than the 2011-12 price ($2.00; Table 3.3).

Low harvest numbers may indicate that statewide populations have not recovered since the 1970s. However, it is likely that trappers have not yet targeted the species since the harvest season was reopened in 1988 due to the low value of weasel pelts. Additional information from trappers is necessary to identifying reasons for the low harvest rate in Iowa.

River Otter

Except for small remnant populations along the Mississippi River, the river otter was extirpated from Iowa by the early 20th century. In 1985, the Iowa DNR initiated a reintroduction program in which 16 otters were released at Red Rock Reservoir in Marion County. Due to state regulations, the Iowa DNR was not able to directly purchase otters from Louisiana. A compromise was reached between Iowa, Kentucky, and Louisiana in which Kentucky purchased the otters from Louisiana ($400/otter) and Iowa traded wild turkeys to Kentucky (2 turkeys/otter) in exchange for the otters.

Between 1985 and 2003, a total of 345 otters were released throughout the state. By 2006, otter populations had expanded statewide. The Iowa DNR created the first regulated otter trapping season in 2006. The harvest quota was set at 400 animals (limit of 2 per licensed furharvester) and a 72-hour reporting grace period was established until the quota was met (Table 3.8). The 2006 harvest exceeded the quota by 66 otters so in 2007, the reporting grace period was shortened to 24 hours. The shortened grace period proved effective as the 2007 harvest exceeded the quota by only 16 animals. Harvest quotas were increased to 500 for the 2008, 2009, and 2010 seasons with harvests totaling 495, 519, and 515 per year, respectively.

In 2011, the harvest quota was set at 650 with a limit of 3 otters per licensed furharvester. A total of 770 otters were harvested (28 from unknown sources) which exceeded the quota due to inconsistencies in harvest reporting among individuals (Figure 6.2). For 2012, the otter harvest quota was increased to 850. A total of 974 otters were harvested. The average otter pelt price in Iowa for 2012 was $56.71 ($25.00-100.00), which was higher than the 2011-12 price ($56.71; Table 3.3).

Since the trapping season was established in 2006, the sex ratio of harvested otters has remained relatively even (Figure 6.3). Foothold traps, conibear traps, and snares were the most common harvest method in the state (Figure 6.4; Table 3.9). The number of furharvesters intentionally targeting otters has remained relatively low as incidental captures appear to be the most common cause for capture in Iowa (Figure 6.5). Although the harvest season has been highly successful and the fur market for otter pelts is strong, the number of furharvesters intentionally targeting otters has remained relatively constant since 2006 (Figure 6.6).

The Iowa Bowhunter Observation Survey is somewhat useful for otters, but not as much as it is for other upland furbearer species that are more readily viewed by bowhunters. The 2012 bowhunter survey indicated that populations may have decreased in the northeast and east-central portions of the state (Figure 6.7). Populations appear to have stabilized in other regions of the state despite the increased harvest quota. The remainder of

the state showed that otter populations pre- and post-trapping have remained at stable numbers. Harvest data and observations suggest that 2012 populations were highest in north east and south central Iowa, although strong harvests numbers were also reported in counties containing the Iowa River Corridor (Figure 6.2).

Despite exceeding quotas in 6 of the previous 7 seasons, our data indicates that otter populations appear to be quite variable from region to region throughout Iowa, but generally doing very well. Therefore, in 2013, the harvest quota has been lifted, but the limit reduced from 3 otters per licensed furharvester down 2 otters. The 2013-14 season for otters will be open during the regular fur harvest season (2 Nov – 31 Jan).

Bobcat

Three felid species including bobcat, Canada lynx, and mountain lion were native to Iowa, although historically, bobcats were most common. By the 1930s, only small remnant populations of bobcat remained scattered throughout the state, particularly in northeast Iowa. Between the 1940s and 1980s, bobcat sightings were exceedingly rare and the species was likely extirpated for extended periods.

Since the early 1990s, bobcat sightings, road kills, and incidental captures by trappers have progressively increased in Iowa. By the early 2000s, confirmed bobcat sightings were recorded in 44 counties, primarily in southern Iowa and along the Mississippi and Missouri River. Populations were naturally expanding in Iowa, which was similarly being documented in Missouri, Nebraska, and Kansas. In 2003, the Iowa DNR concluded that populations had steadily increased and stabilized; therefore bobcats were delisted as a threatened species in the state. Over the next 2 years, bobcat sightings continued to increase. By 2005, confirmed sightings had been recorded in 78 counties.

In 2007, the Iowa DNR created the first regulated bobcat trapping season in the state. The harvest quota was set at 150 animals (limit of 1 per licensed furharvester) and a 24-hour reporting grace period was established until the quota was met (Table 4.0). Bobcat harvest was limited to the bottom two tiers of counties in Iowa (21 counties). The 2007 harvest included 149 bobcats plus an additional 5 road kill individuals.

Harvest quotas were increased to 200 during the 2008 and 2009 seasons with harvests totaling 232 and 231, respectively. Woodbury, Monona, Harrison, and Pottawattamie counties along the Missouri river were added to the open zone. In 2010, harvest quotas were further increased to 250 and a total of 263 bobcats were reported. The 2010 open zone was expanded to include the bottom 3 tiers of counties in Iowa plus Guthrie County in south-central Iowa. In 2011, the harvest quota was set at 350 (limit of 1 per licensed furharvester) and the open harvest zone remained similar to the 2010 zone (Figure 6.8).

In 2012, the harvest quota was set at 450 (Table 4.0). The average bobcat pelt price in Iowa for 2012 was $83.89 ($10.00-237.00), which was higher than the 2011-12 price ($66.81) and the highest value of all Iowa furbearer species (Table 3.3). Harvest was highest mainly in the south central region of Iowa (Figure 6.9).

Since the trapping season was established in 2007, the sex ratio of harvested bobcats has remained relatively even (Figure 7.0). Snares, conibear traps, and foothold traps were the most common trapping method and archery the most

common hunting method in the state (Figure 7.1; Table 4.1). The number of furharvesters intentionally targeting bobcats has remained relatively low as incidental captures appear to be the most common cause for capture in Iowa (Figure 7.2). Although the harvest season has been highly successful and the fur market for bobcat pelts is strong, the number of furharvesters intentionally targeting bobcats has remained relatively constant since 2006 (Figure 7.3).

The 2012 Iowa Bowhunter Observation Survey indicated that since regulated bobcat trapping began in 2007, populations have remained fairly stable throughout the state, but did indicate a decrease in southeast and southwest portions (Figure 7.4). Population numbers are highest throughout southern Iowa which is supported by trapping, road kill data, and habitat modeling. Populations appear higher in west-central Iowa along the Missouri River which is further supported by good harvest numbers in Monona and Harrison counties. Recovery in central and northern Iowa has been slow due to a lack of ideal habitat when compared with southern Iowa, although populations have remained stable but low since 2004.

Despite exceeding quotas in 5 of the previous 6 seasons, bobcat populations have remained good throughout the state where ideal habitat exists. For 2013, the bobcat harvest quota has been lifted with the limit remaining at 1 bobcat per licensed furharvester. The harvest season will be open with the regular fur harvest season (2 Nov – 31 Jan).

Figure 3.1. Proportion of total harvest in Iowa by species (1930-1939).

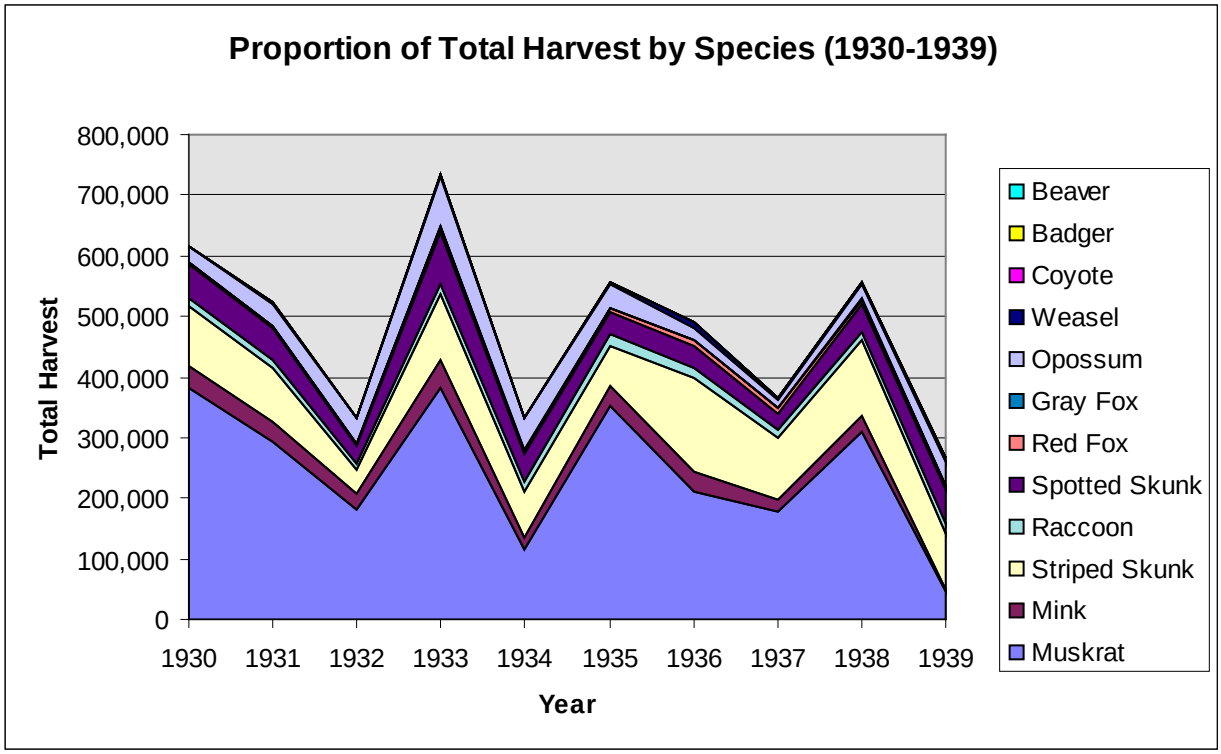


Figure 3.2. Proportion of total harvest in Iowa by species (1930-present).

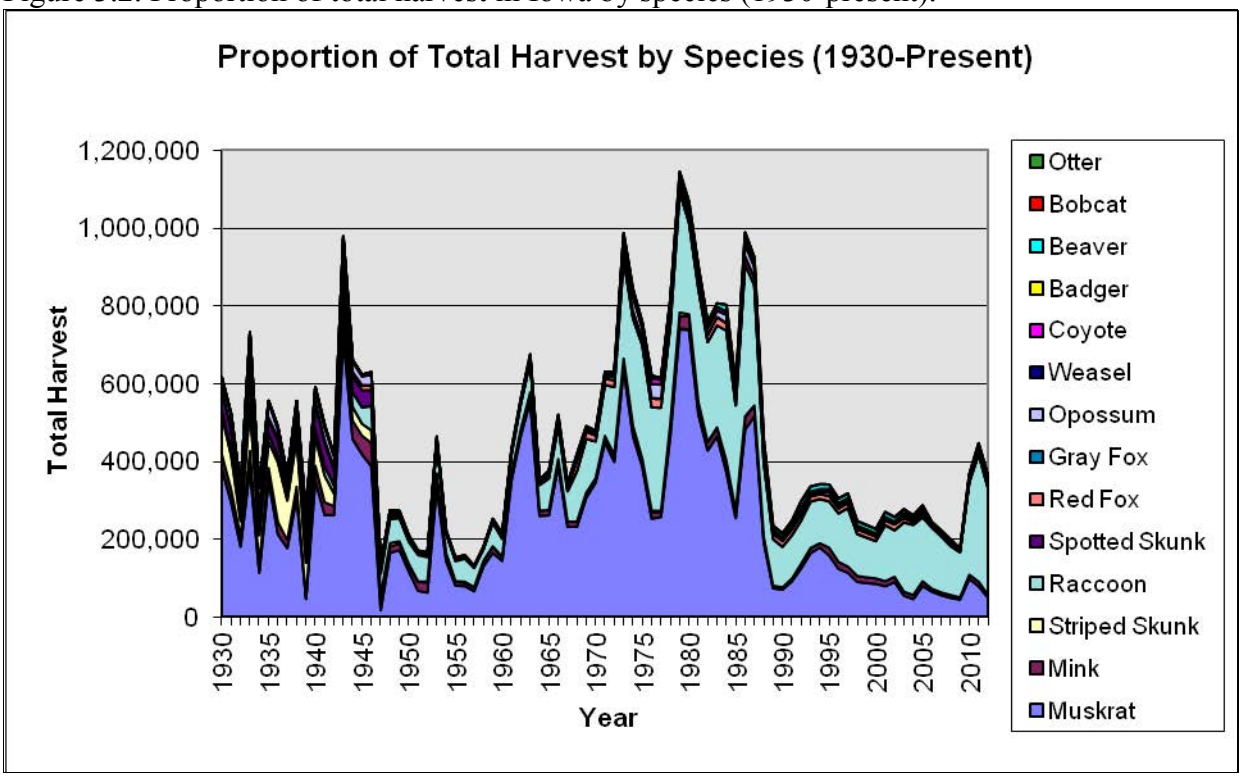


Figure 3.3. Proportion of total harvest in Iowa by species (2000-present).

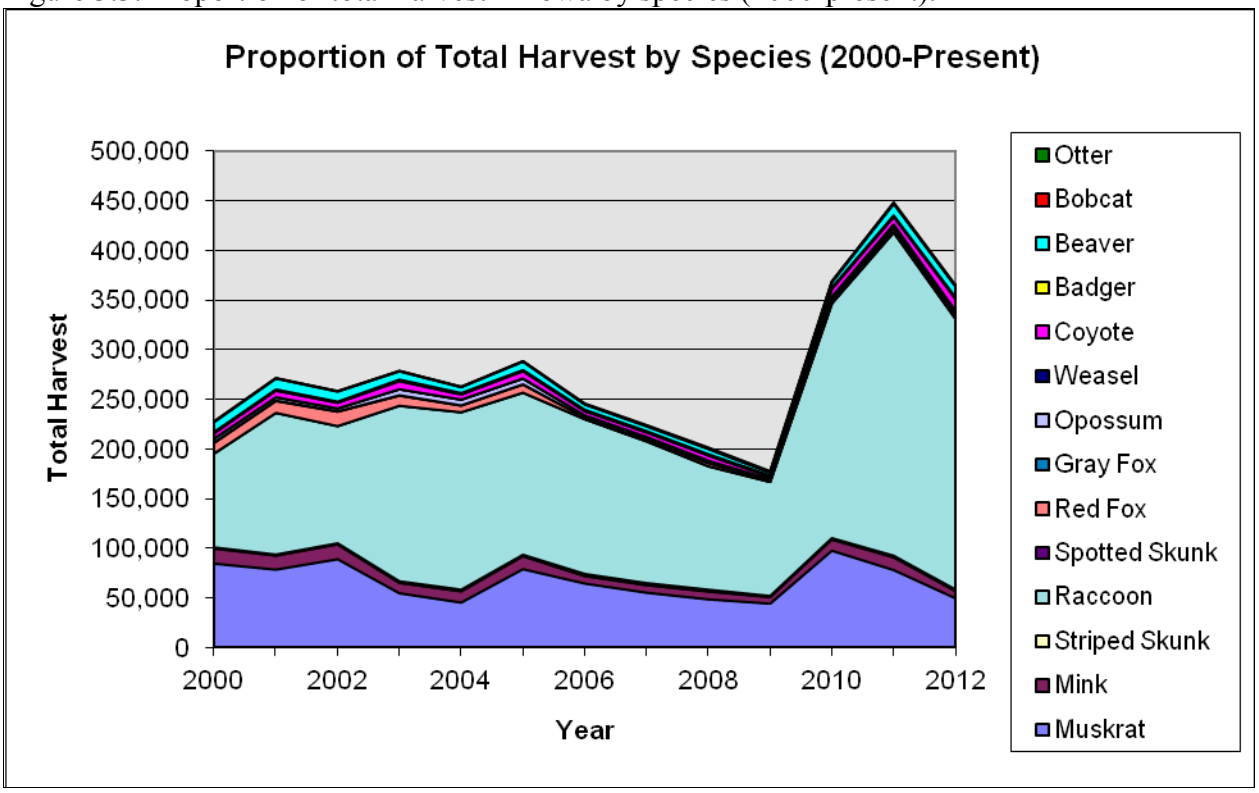


Figure 3.4. Number of licensed Iowa furharvesters and total harvest value in Iowa (2001-present).

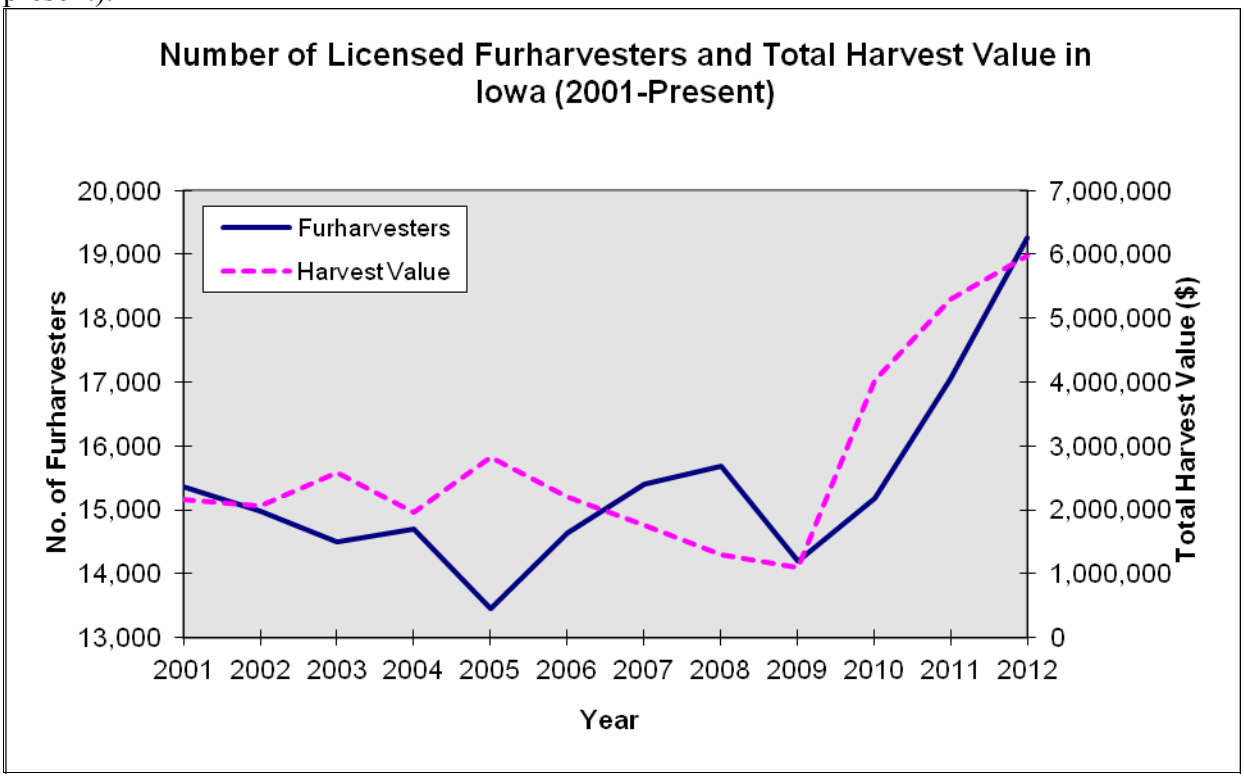


Figure 3.5. Number of licensed Iowa fur dealers and total harvest value in Iowa (2001-present).

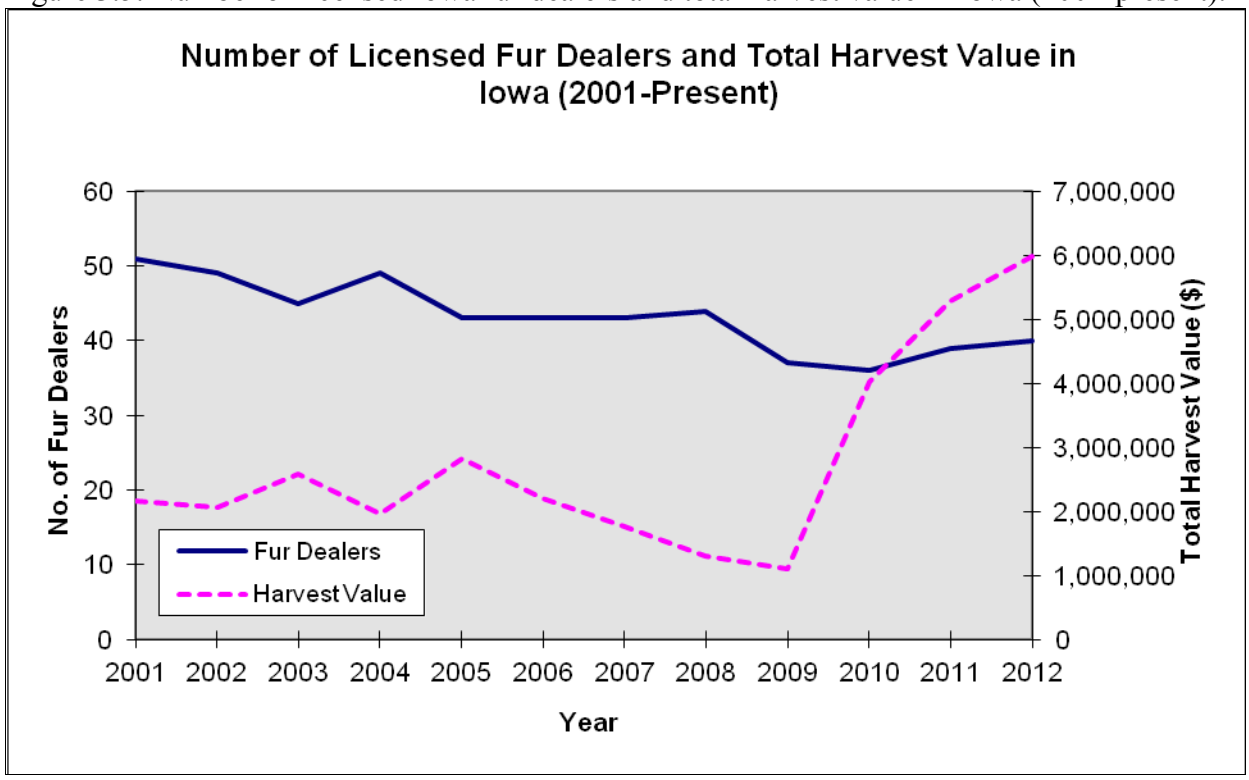


Figure 3.6. Annual raccoon harvests reported by licensed fur dealers in Iowa (1930-present).

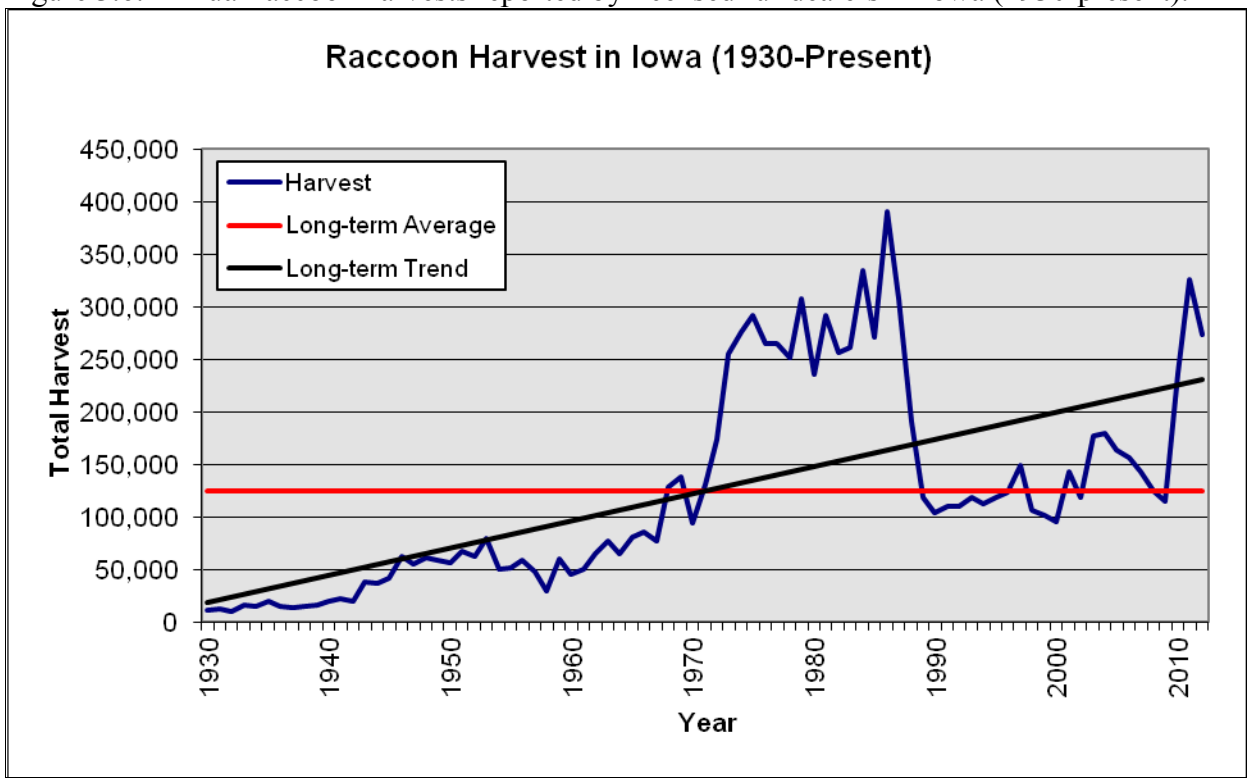


Figure 3.7. Raccoon harvest in Iowa and average pelt price paid by fur dealers (1977-present).

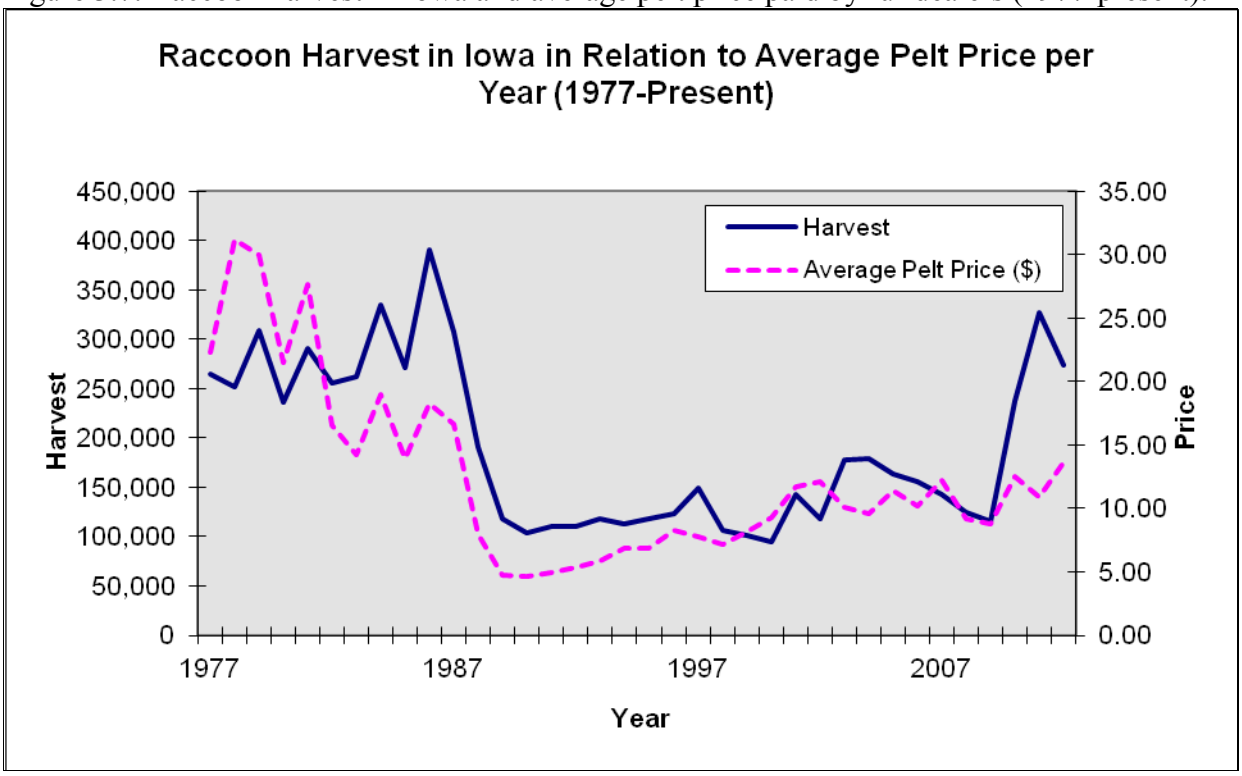


Figure 3.8. Results of raccoon Bowhunter Observation Survey in Iowa (2004-present).

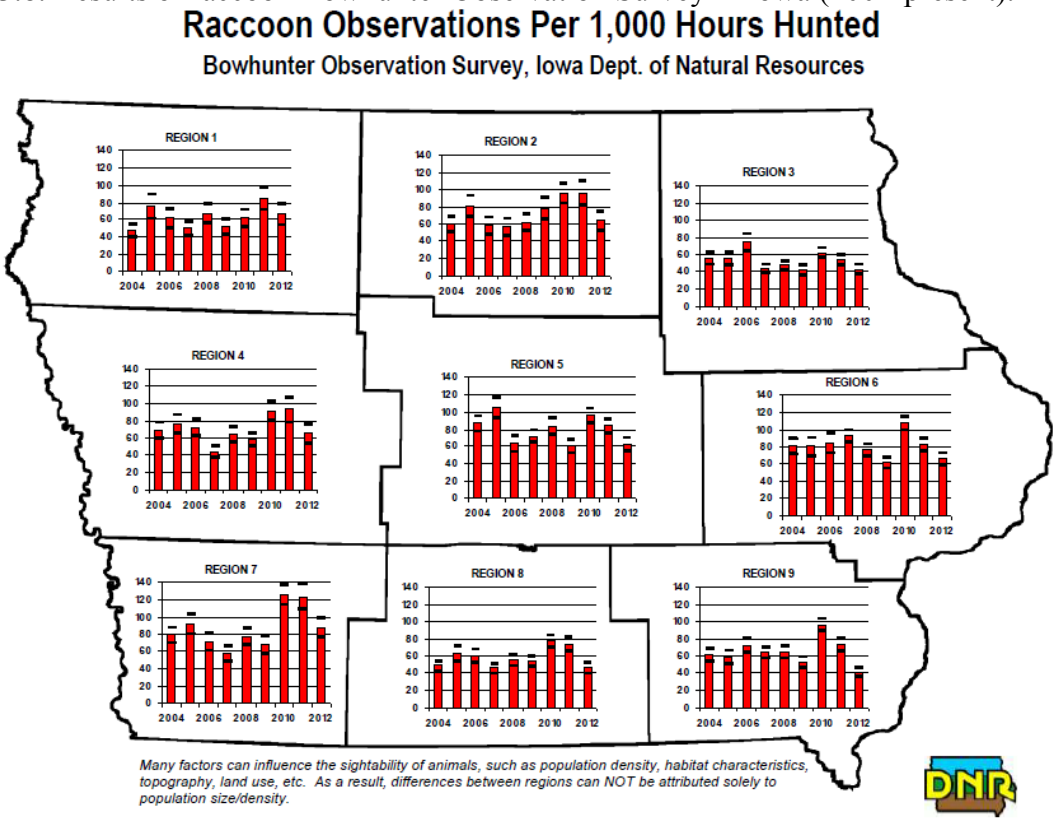


Figure 3.9. Results of April raccoon spotlight surveys in Iowa (1977-present).

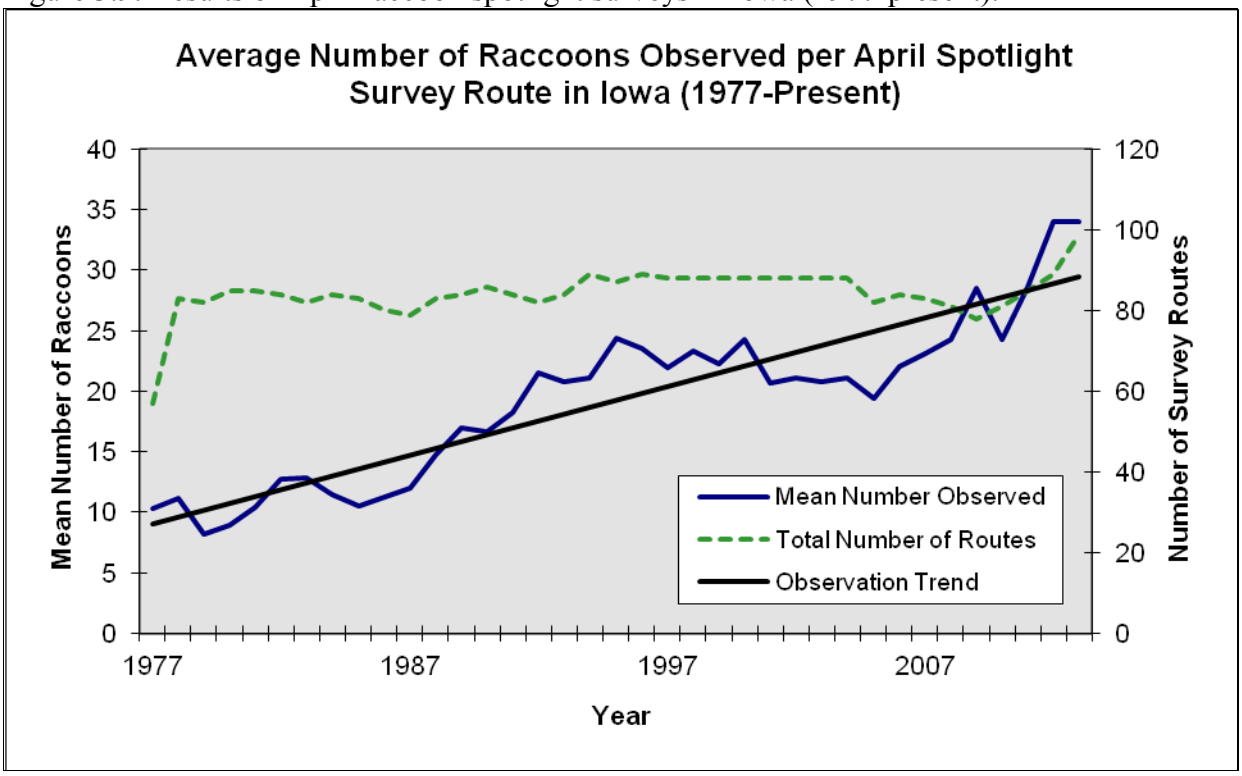


Figure 4.0. Raccoon observed per route during the spring spotlight survey 2013.

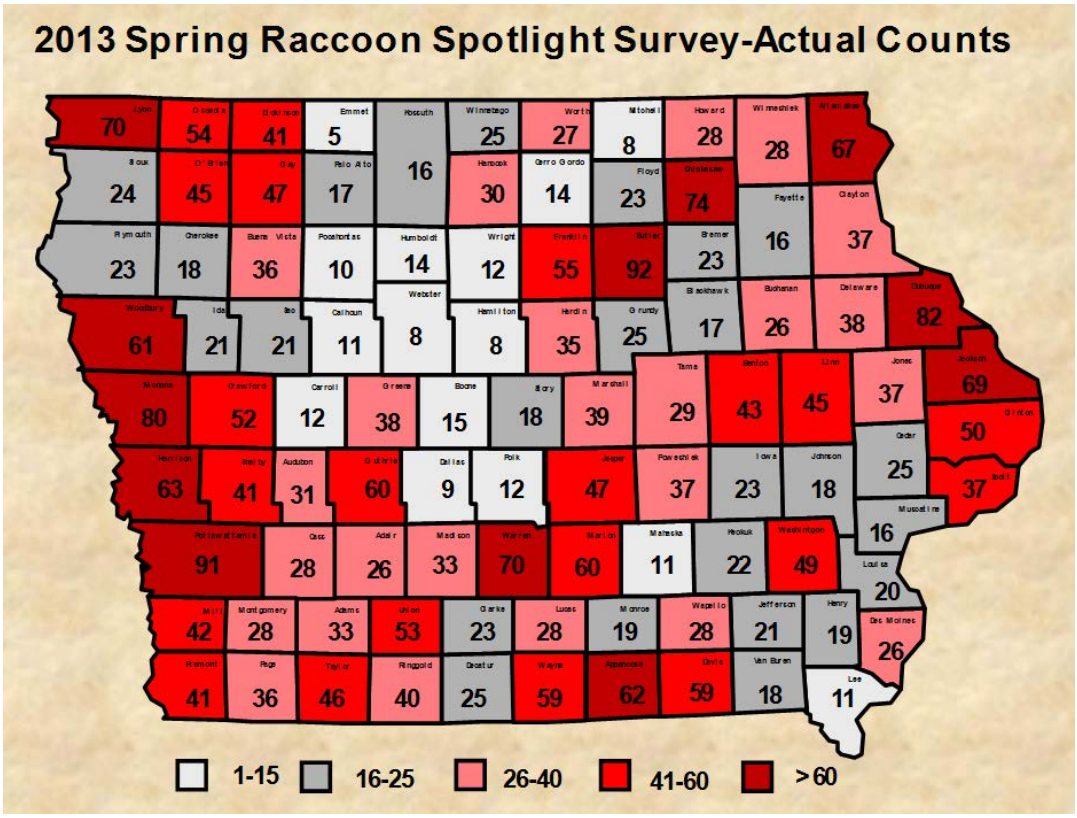


Figure 4.1. Percent change of raccoon observed per route during the spring spotlight survey 2013.

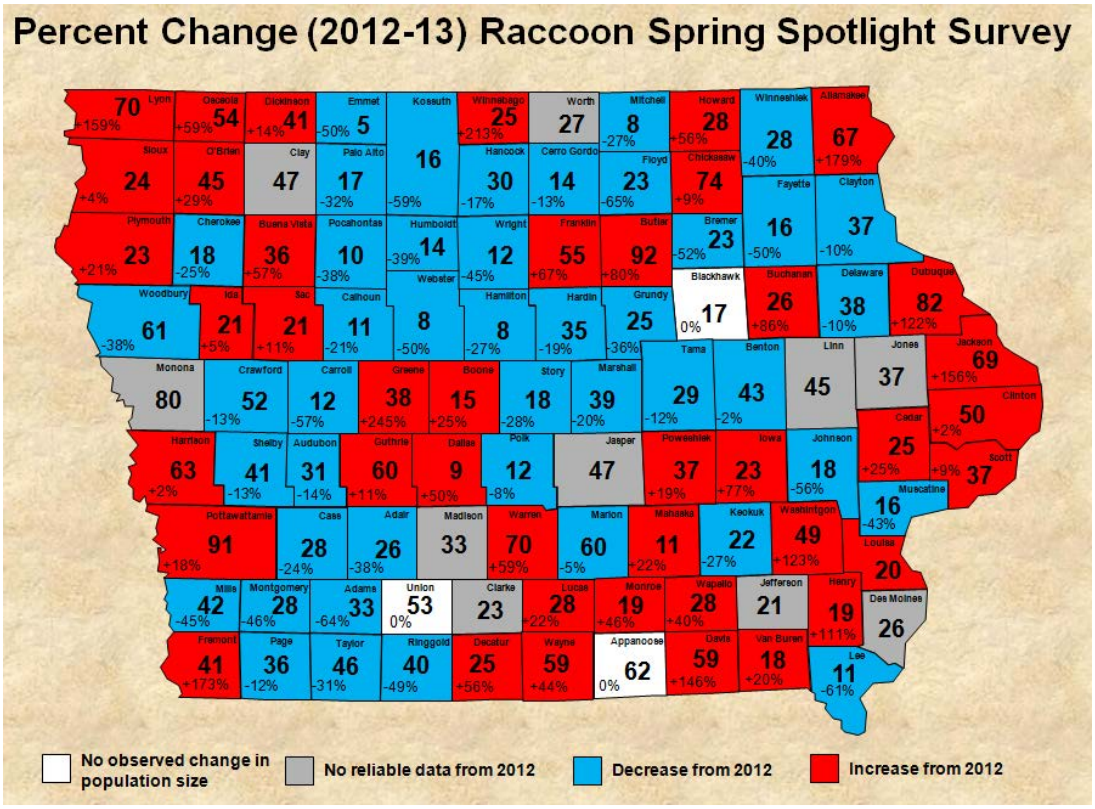


Figure 4.2. Annual muskrat harvests reported by licensed fur dealers in Iowa (1930-present).

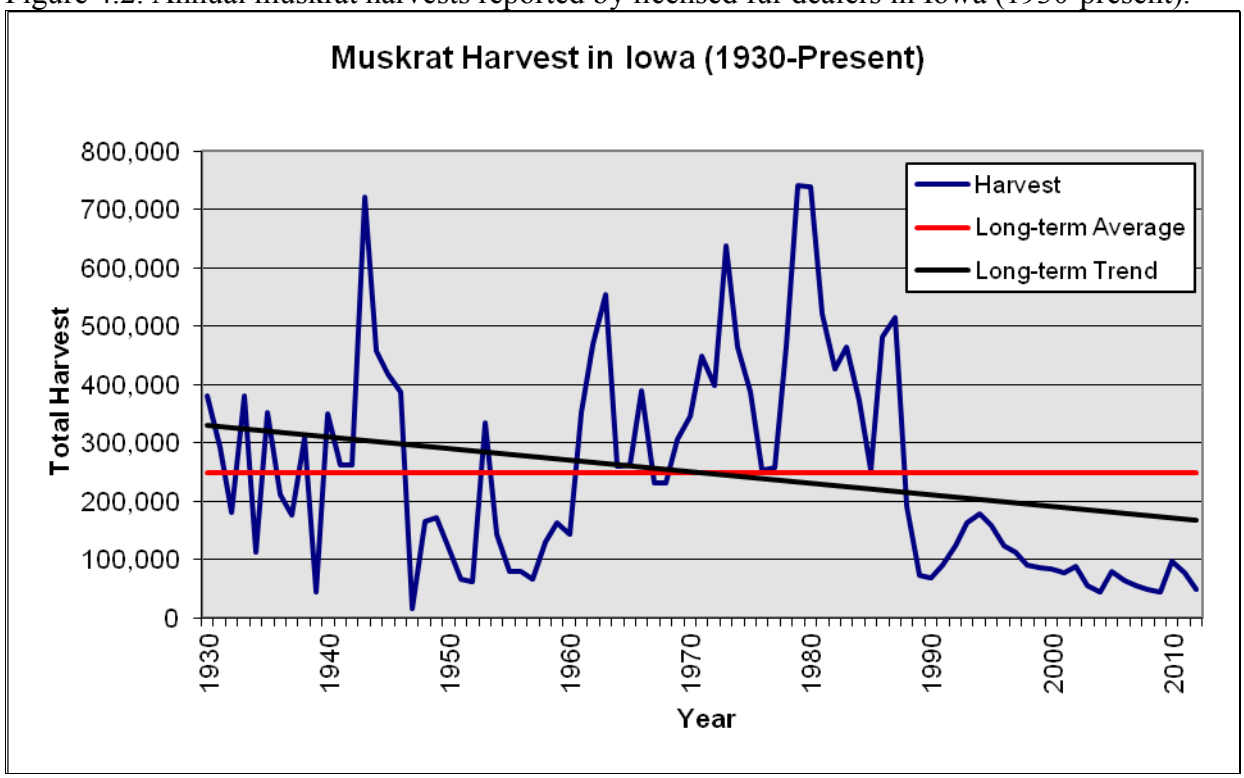


Figure 4.3. Muskrat harvest in Iowa and average pelt price paid by fur dealers (1977-present).

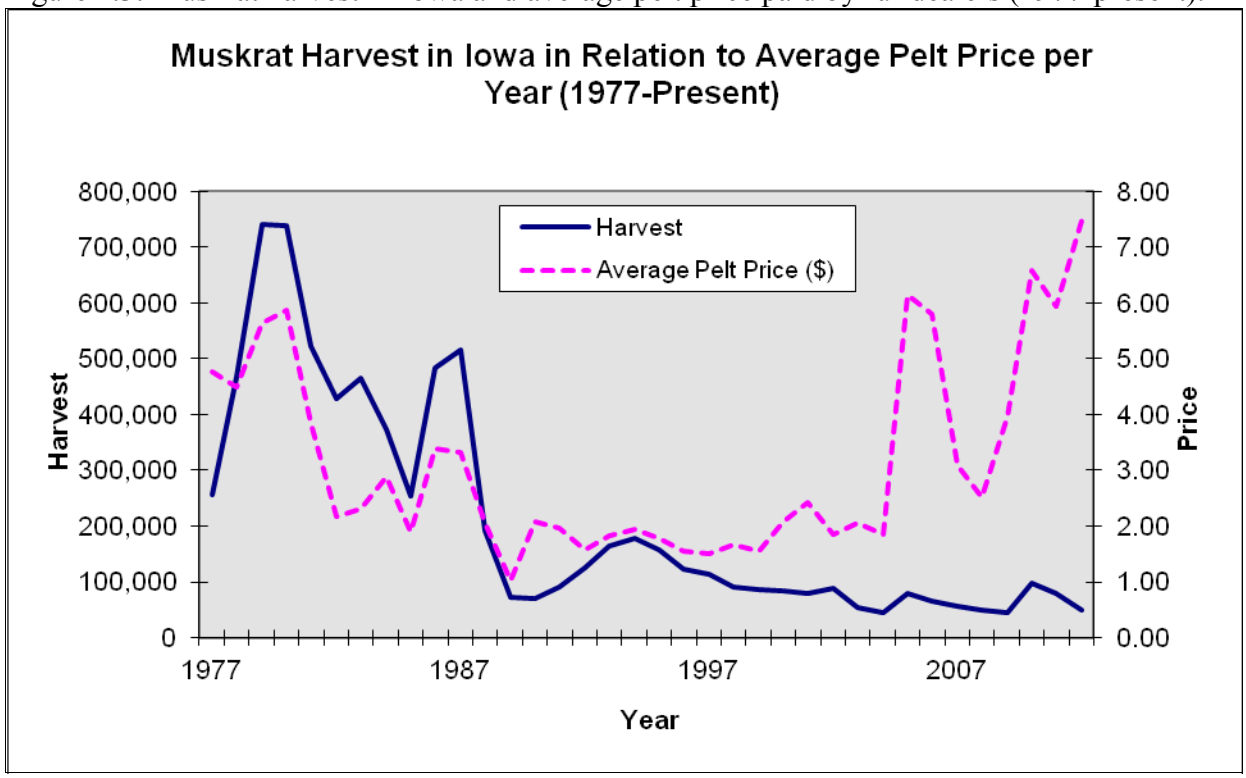


Figure 4.4. Annual coyote harvests reported by licensed fur dealers in Iowa (1930-present).

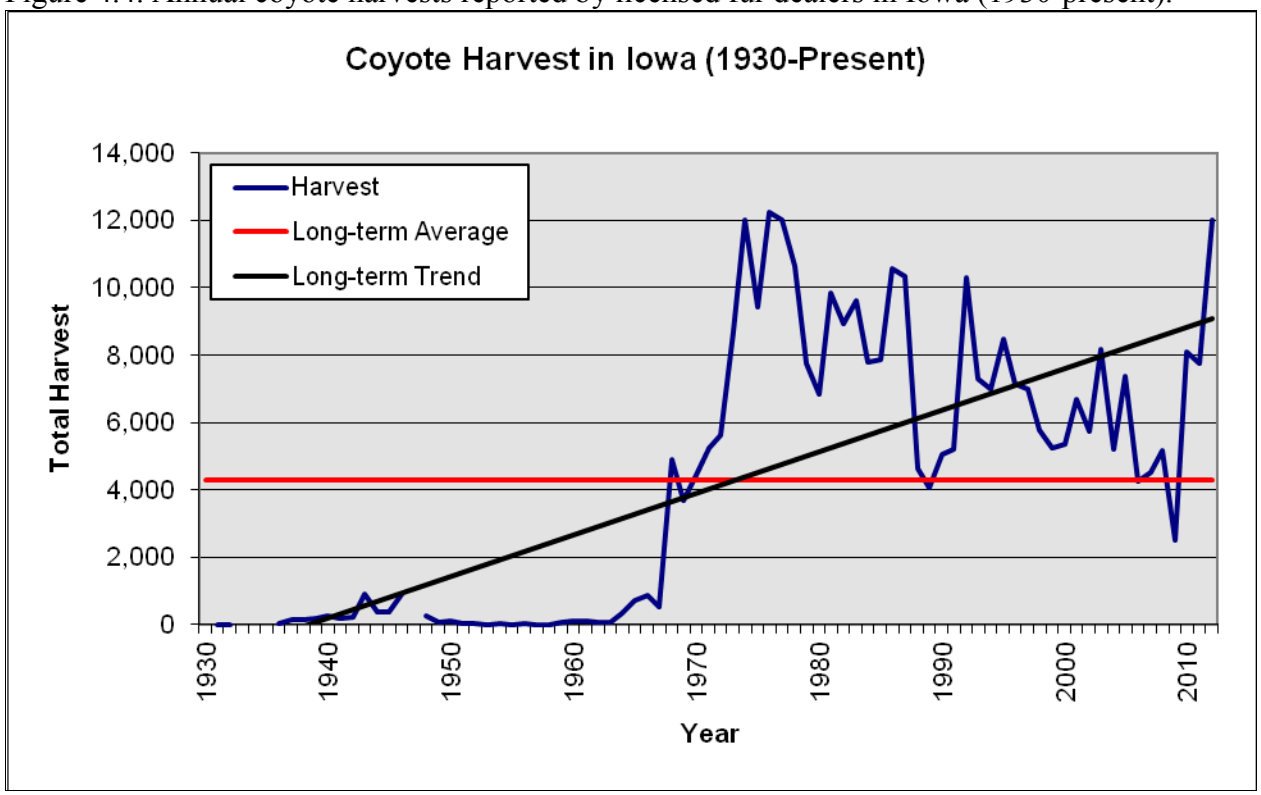


Figure 4.5. Results of coyote Bowhunter Observation Survey in Iowa (2004-present).

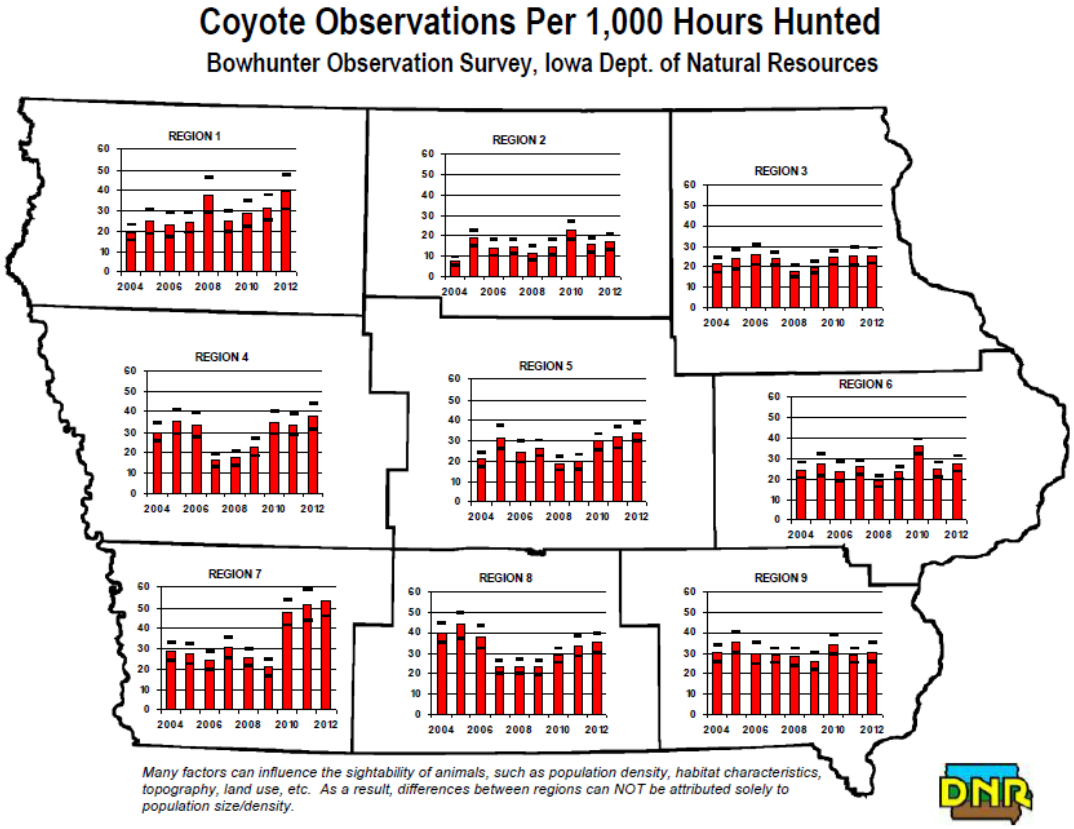


Figure 4.6. Annual red fox harvests reported by licensed fur dealers in Iowa (1930-present).

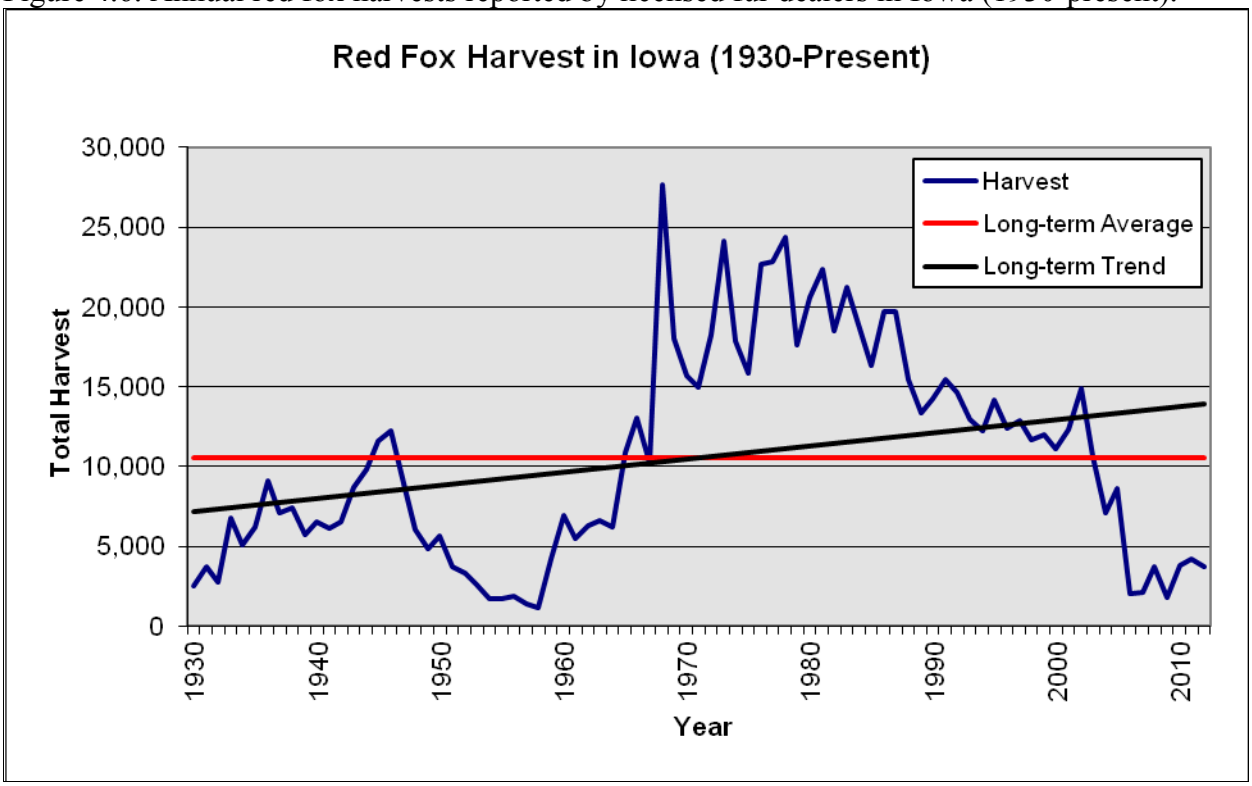


Figure 4.7. Red fox harvest in Iowa and average pelt price paid by fur dealers (1977-present).

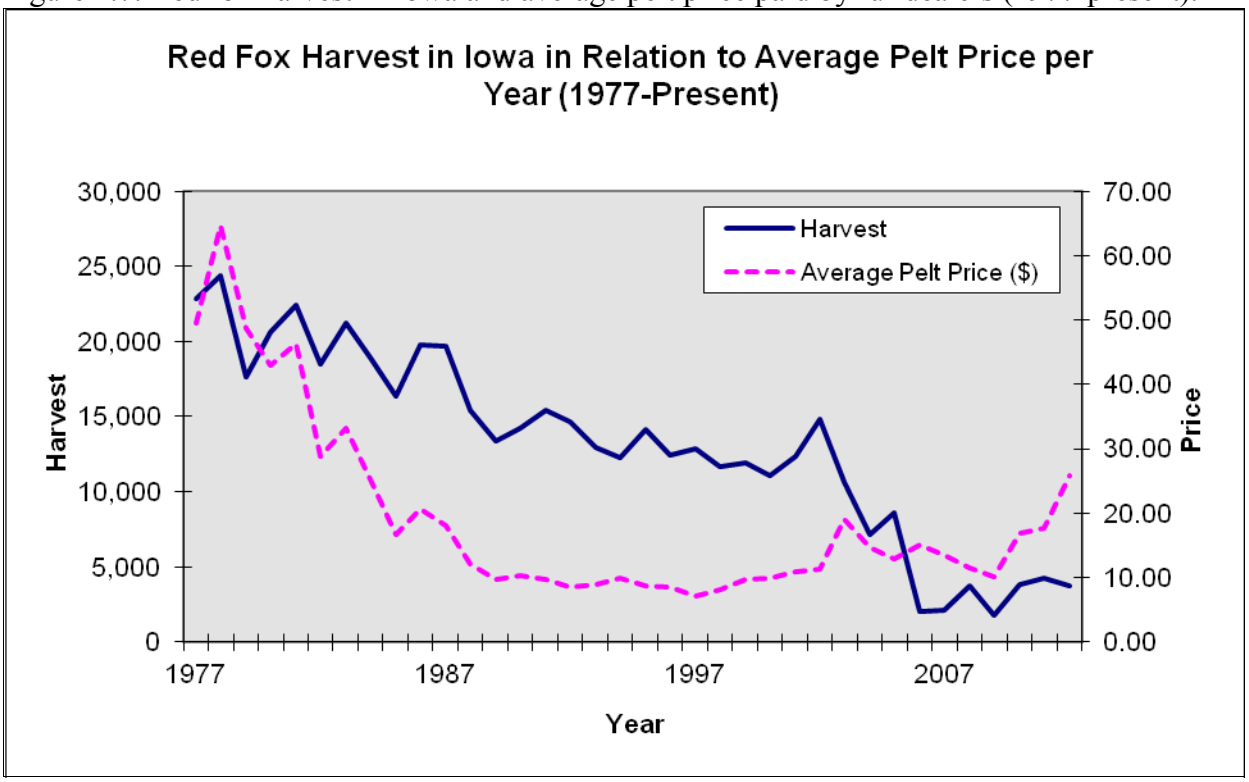


Figure 4.8. Results of red fox Bowhunter Observation Survey in Iowa (2004-present).

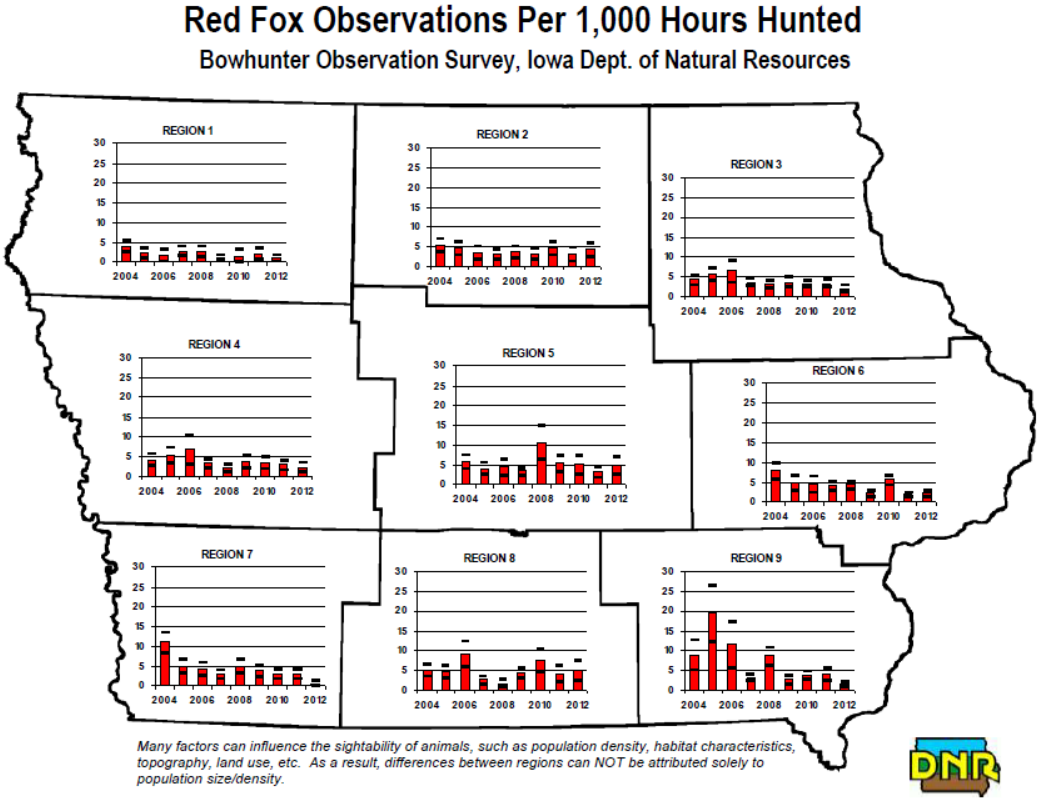


Figure 4.9. Annual gray fox harvests reported by licensed fur dealers in Iowa (1930-present).

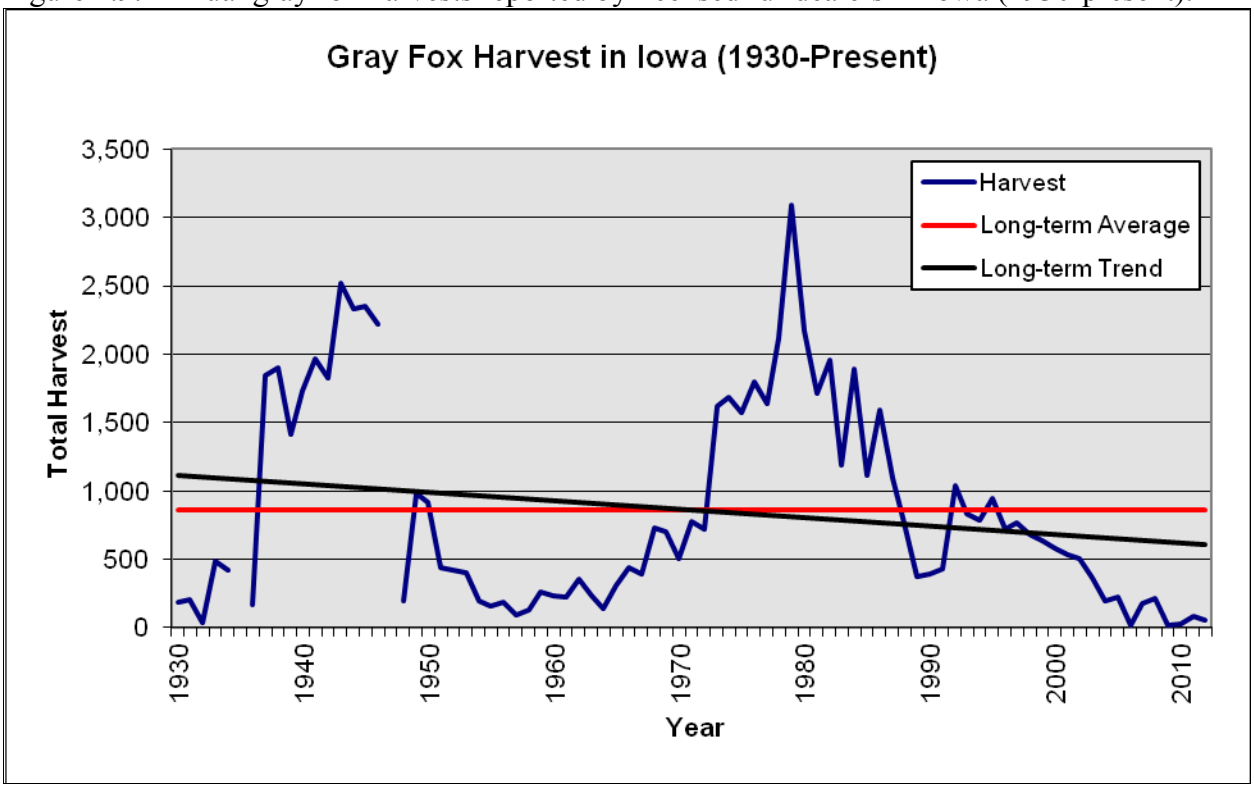


Figure 5.0. Results of gray fox Bowhunter Observation Survey in Iowa (2004-present).

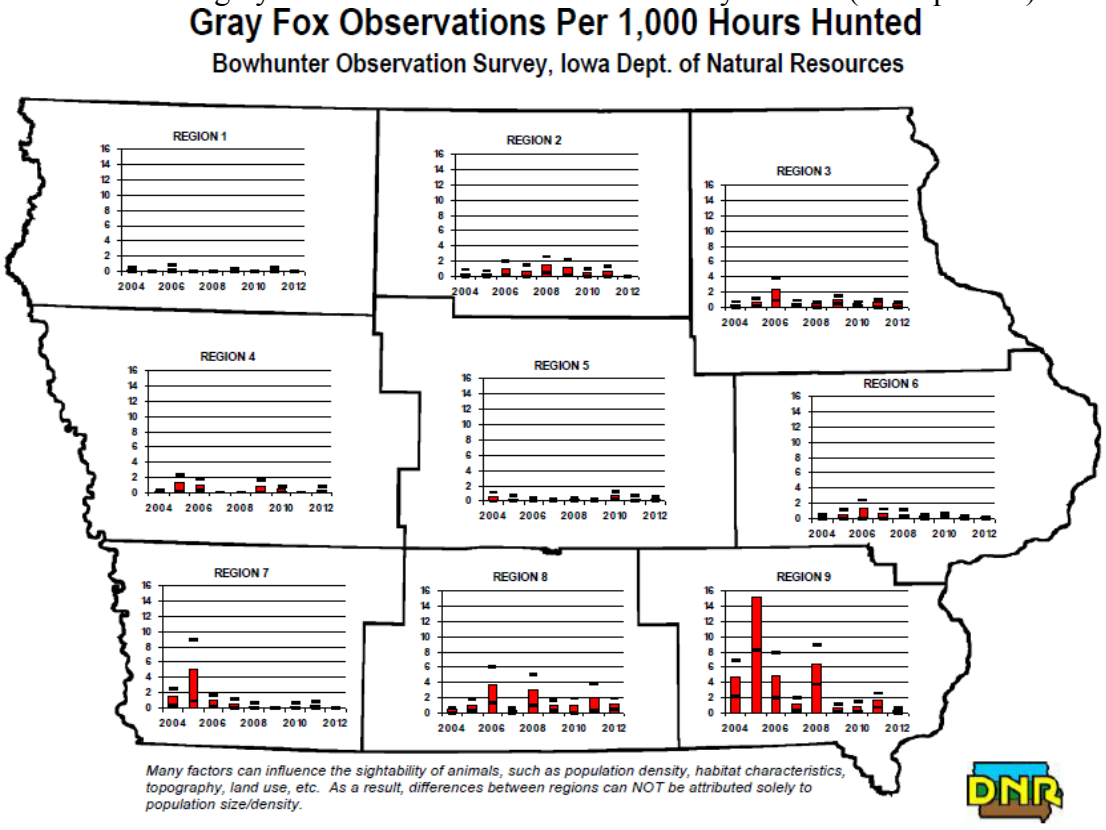


Figure 5.1. Annual beaver harvests reported by licensed fur dealers in Iowa (1930-present).

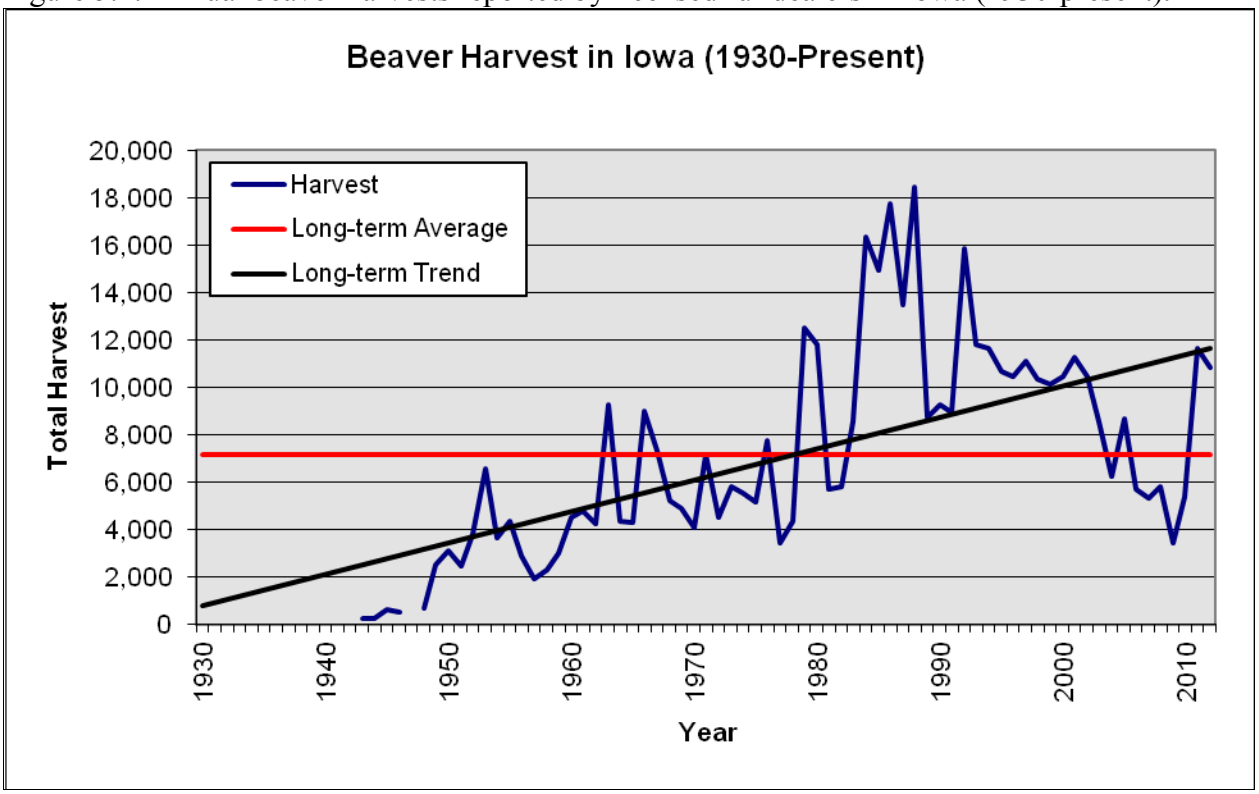


Figure 5.2. Annual mink harvests reported by licensed fur dealers in Iowa (1930-present).

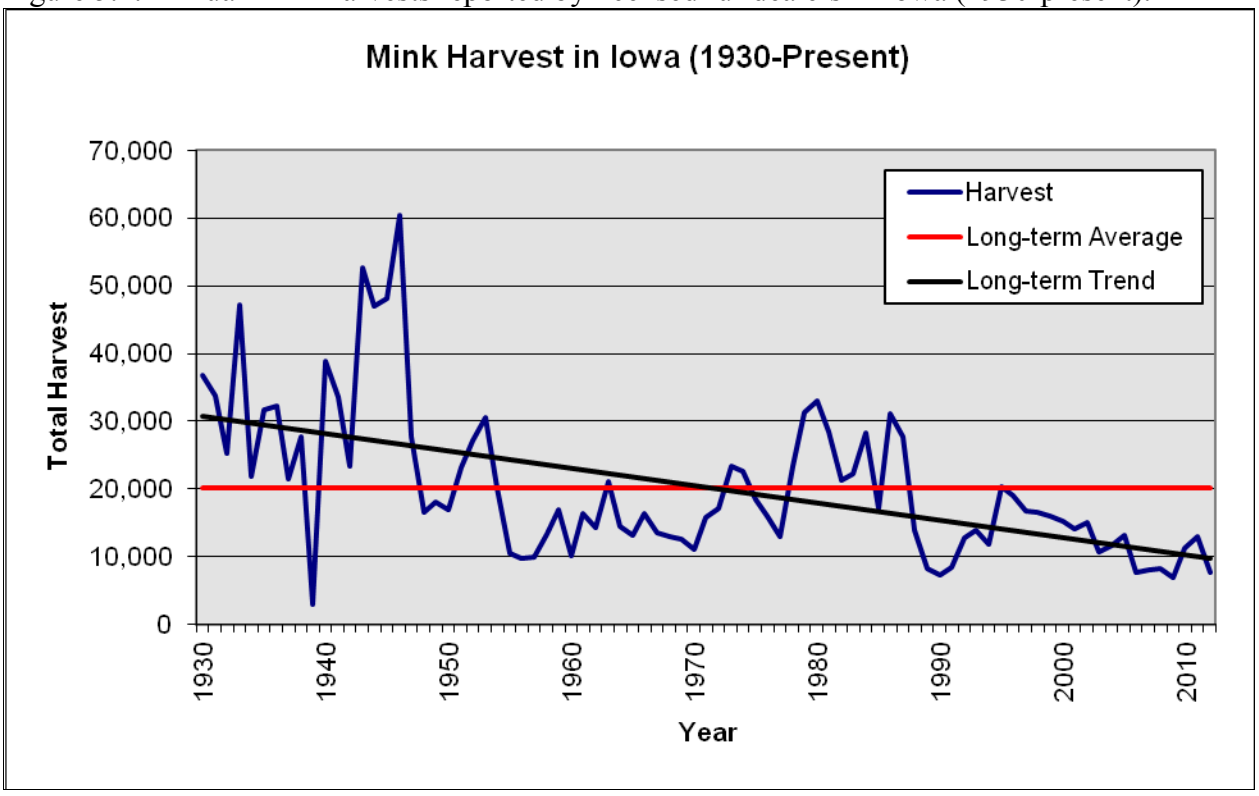


Figure 5.3. Mink harvest in Iowa and average pelt price paid by fur dealers (1977-present).

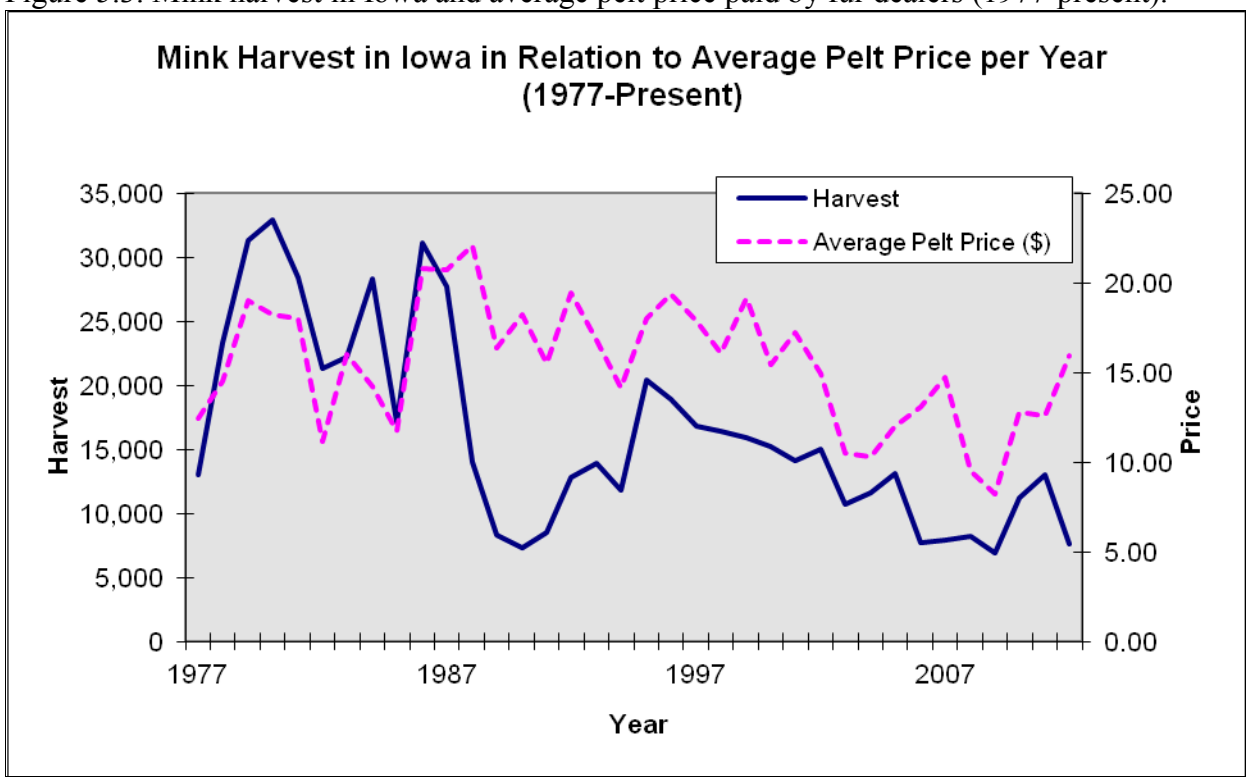


Figure 5.4. Annual opossum harvests reported by licensed fur dealers in Iowa (1930-present).

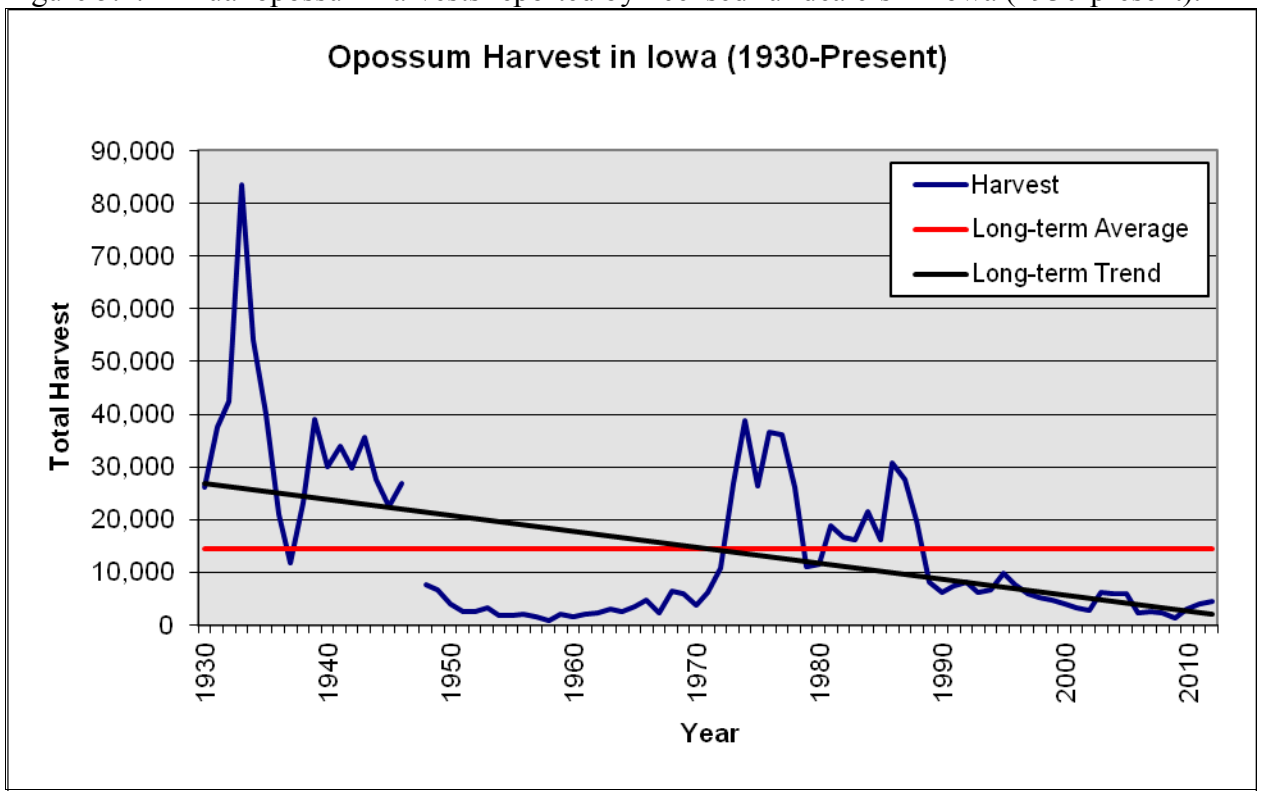


Figure 5.5. Results of opossum Bowhunter Observation Survey in Iowa (2004-present).

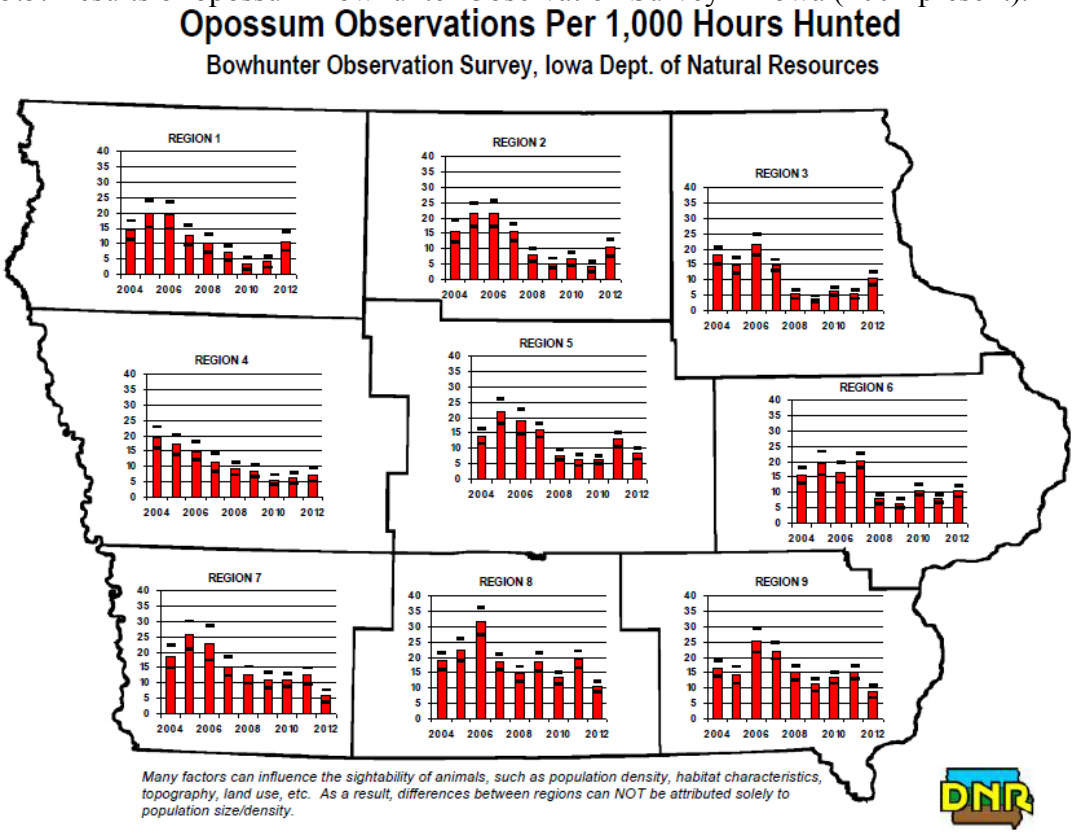


Figure 5.6. Annual badger harvests reported by licensed fur dealers in Iowa (1930-present).

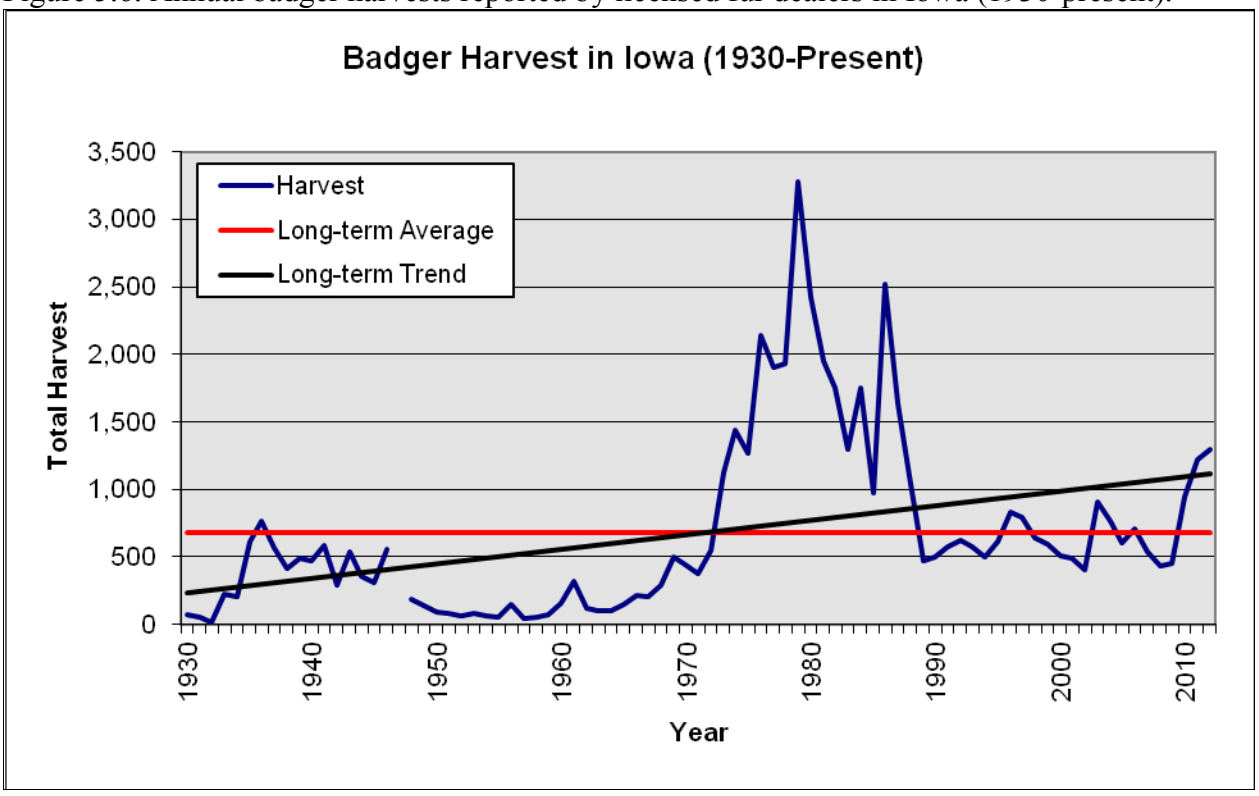
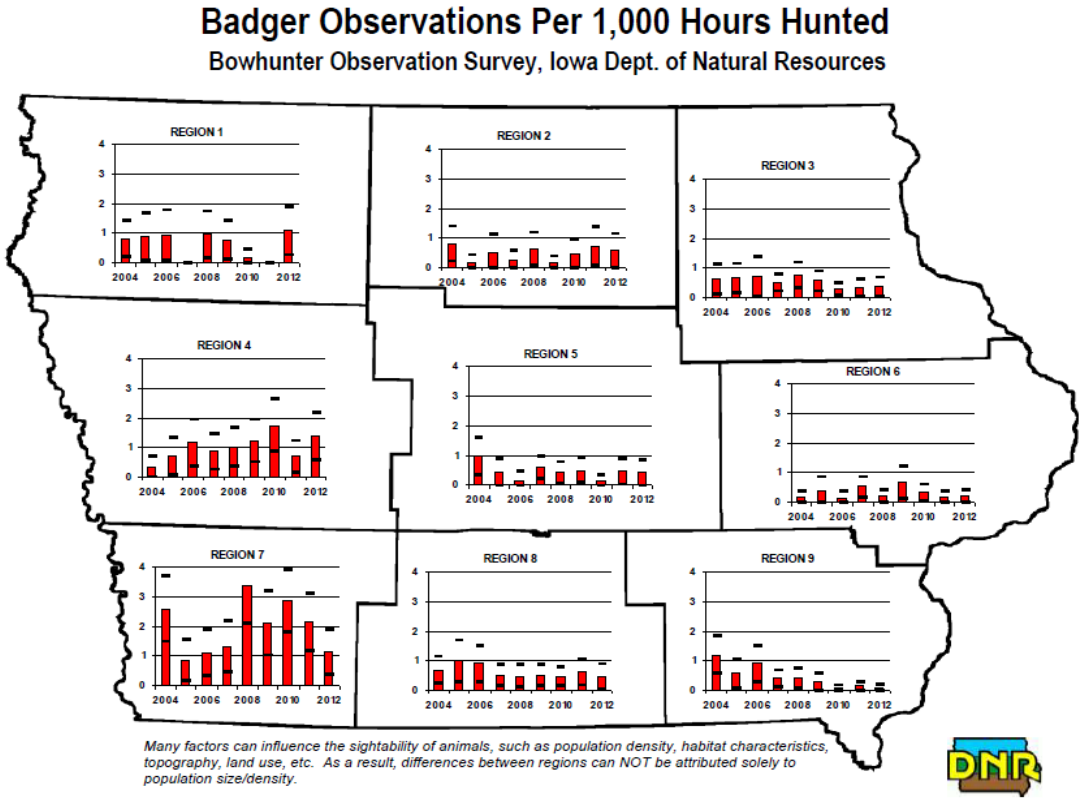


Figure 5.7. Results of badger Bowhunter Observation Survey in Iowa (2004-present).



Figre 5.8. Annual spotted skunk harvests reported by licensed fur dealers in Iowa (1930-present).

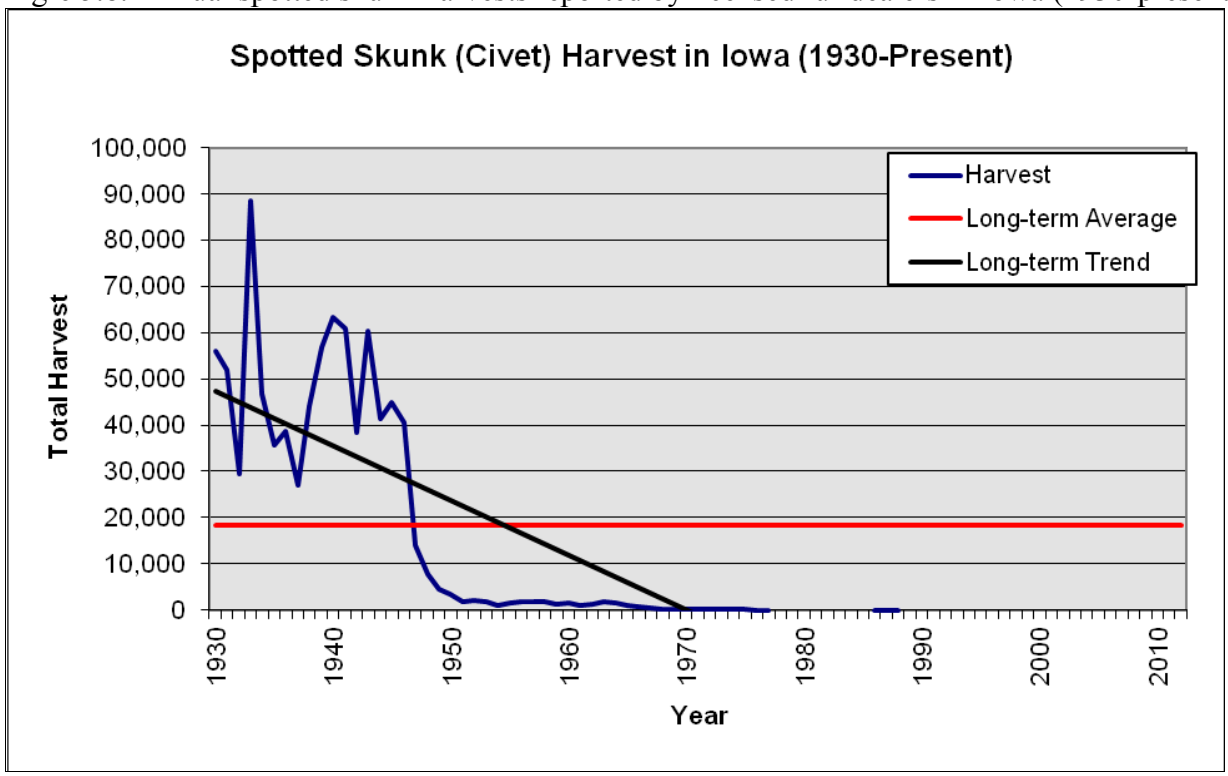


Figure 5.9. Annual striped skunk harvests reported by licensed fur dealers in Iowa (1930-present).

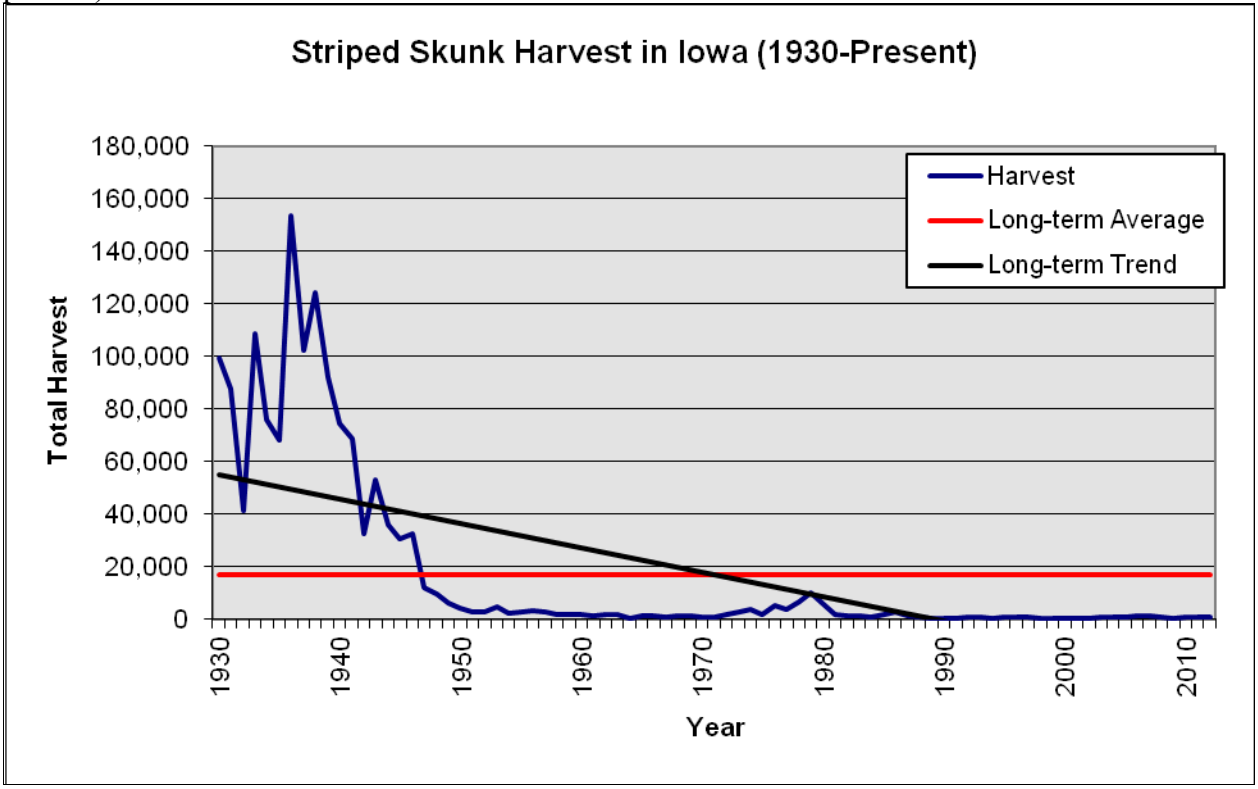


Figure 6.0. Results of striped skunk Bowhunter Observation Survey in Iowa (2004-present).

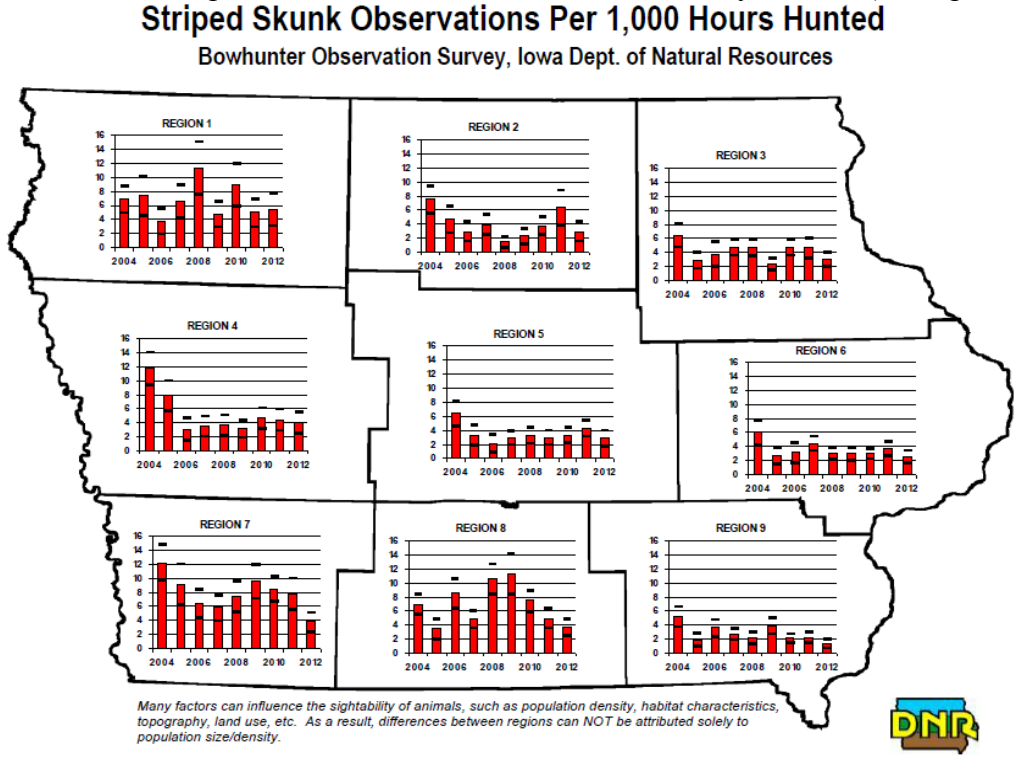


Figure 6.1. Annual weasel harvests reported by licensed fur dealers in Iowa (1930-present).

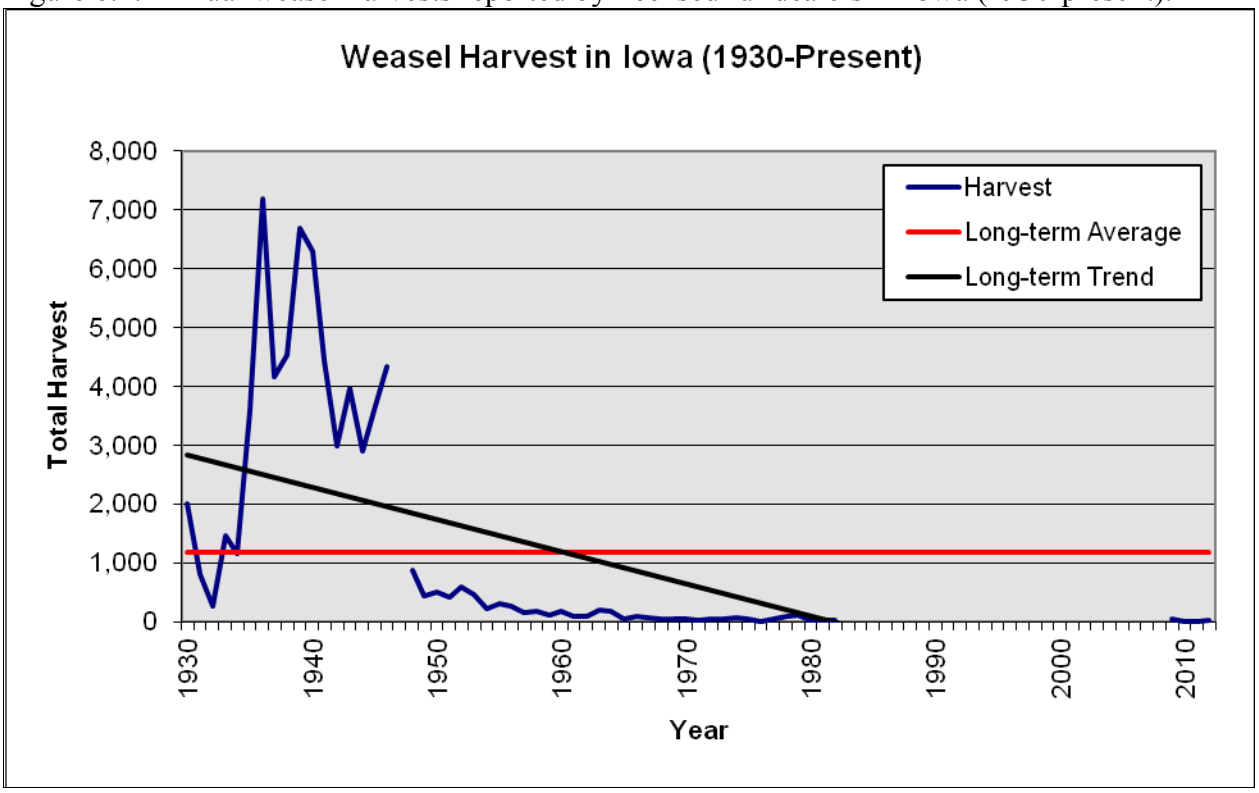


Figure 6.2. River otter harvest per county in Iowa, 2012.

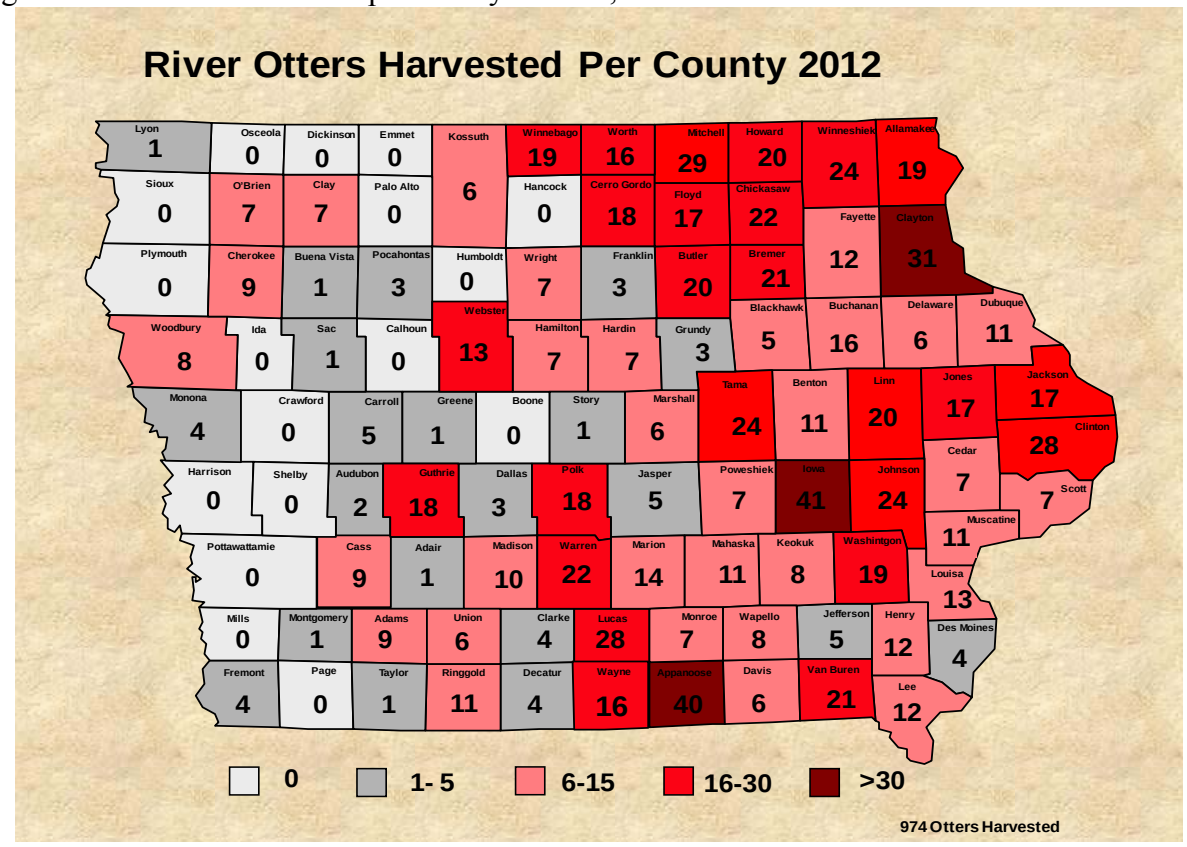


Figure 6.3. Sex ratio of harvested river otters in Iowa (2006-present).

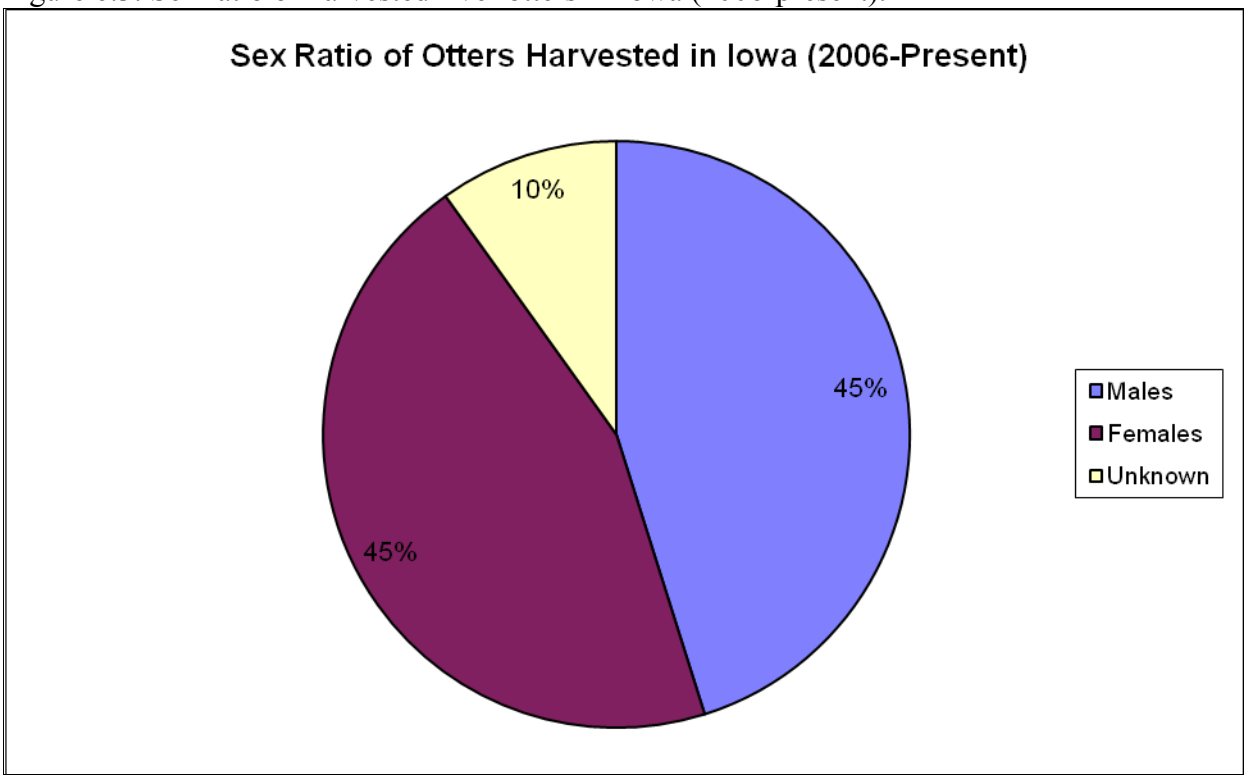


Figure 6.4. Harvest method of river otters in Iowa (2006-present).

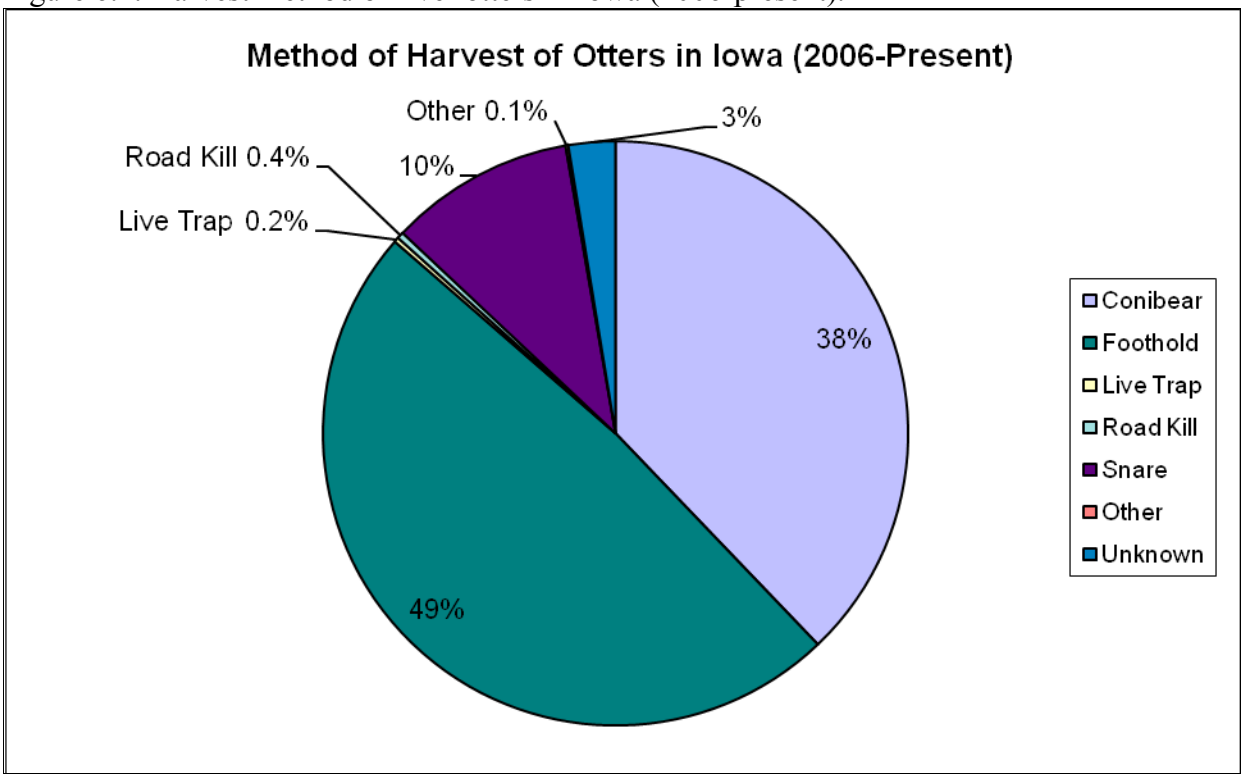


Figure 6.5. Percent of river otters intentionally and incidentally harvested in Iowa (2006-present).

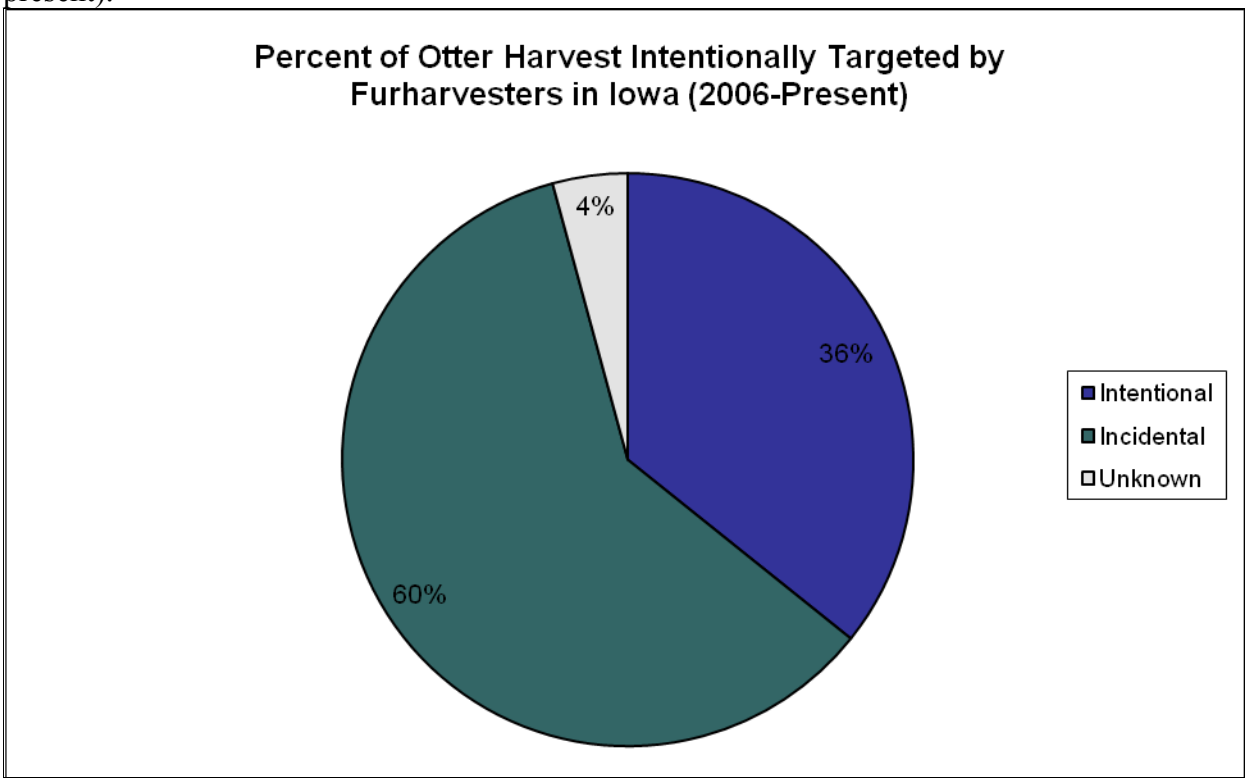


Figure 6.6. Trend for furharvesters intentionally targeting river otters in Iowa (2006-present).

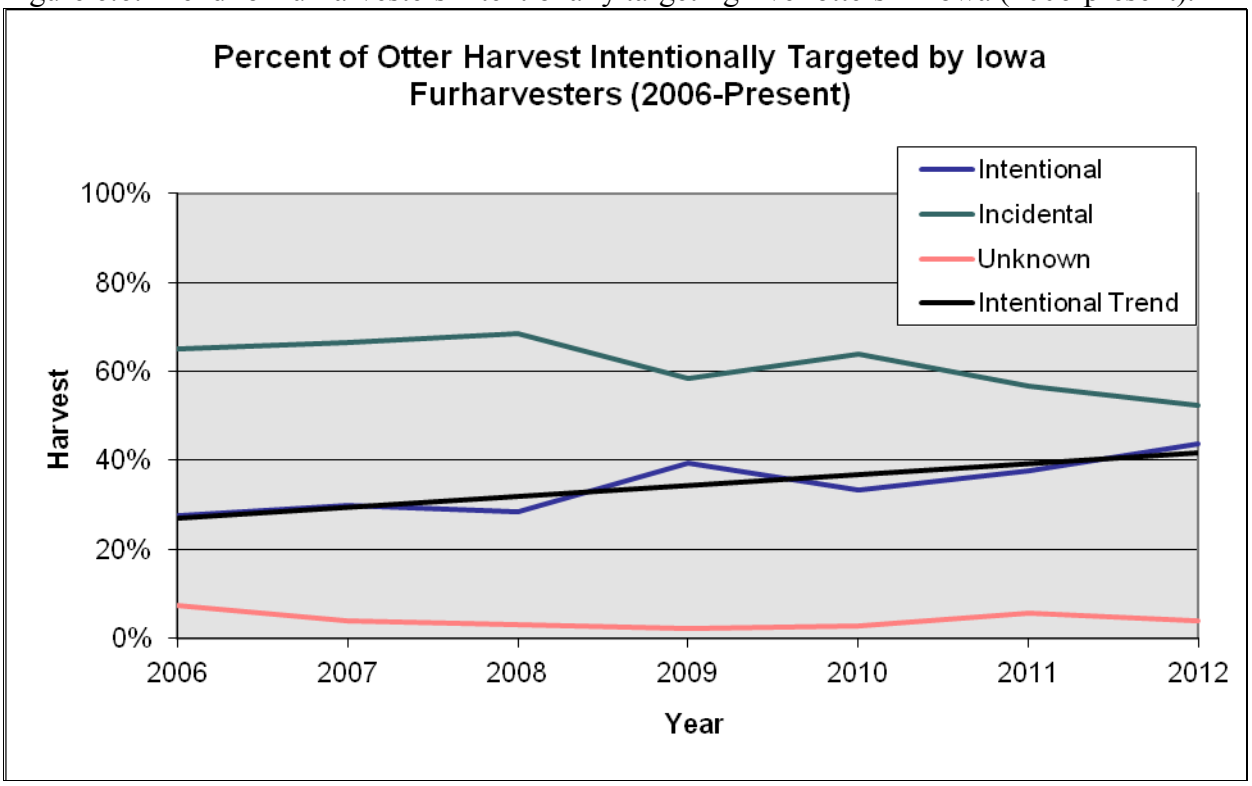


Figure 6.7. Results of river otter Bowhunter Observation Survey in Iowa (2004-present).

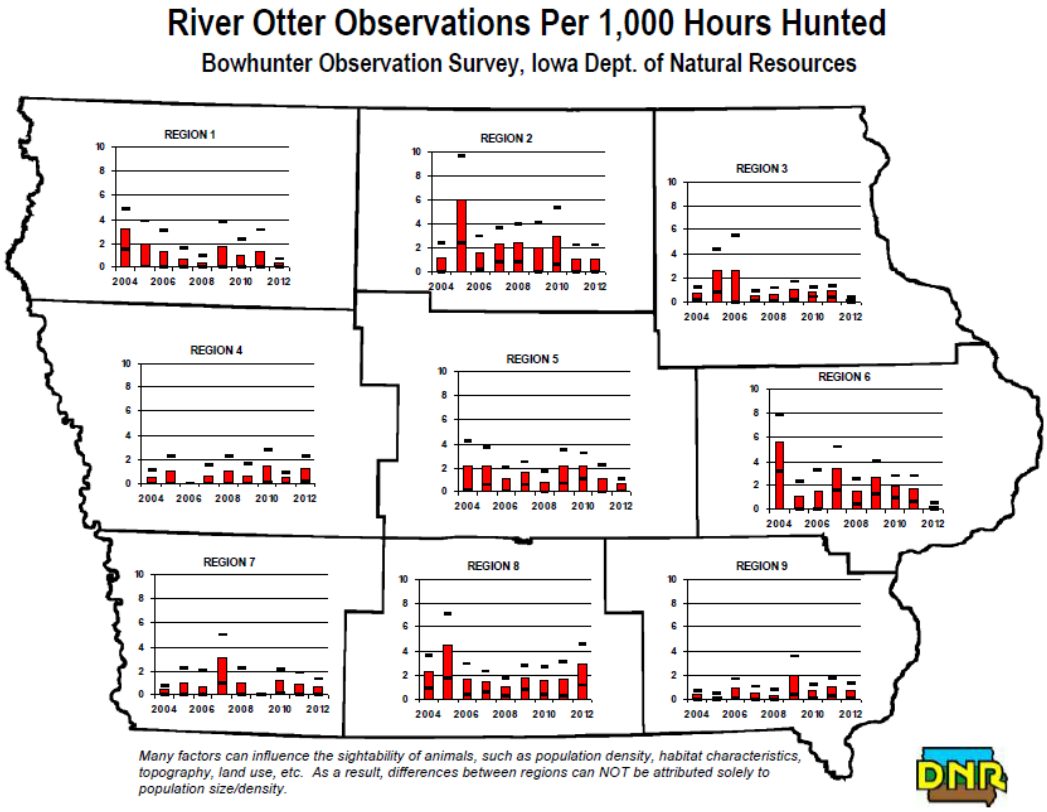
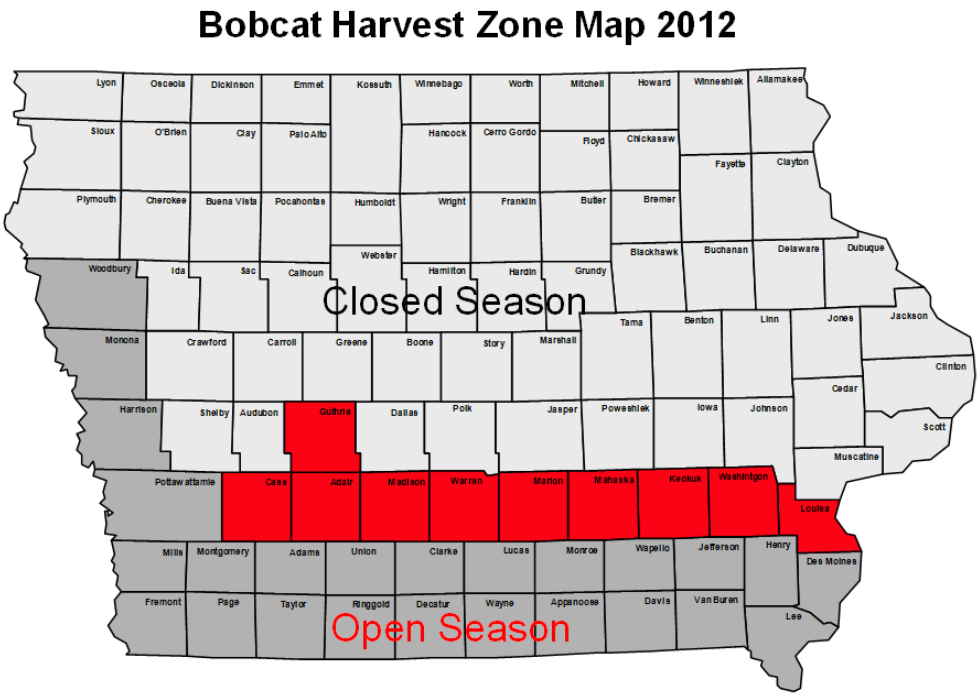


Figure 6.8. Open harvest zone for bobcat trapping season in Iowa, 2012.



* Red counties were added to open zone in 2010.

Figure 6.9. Bobcat harvest per county in Iowa, 2012.

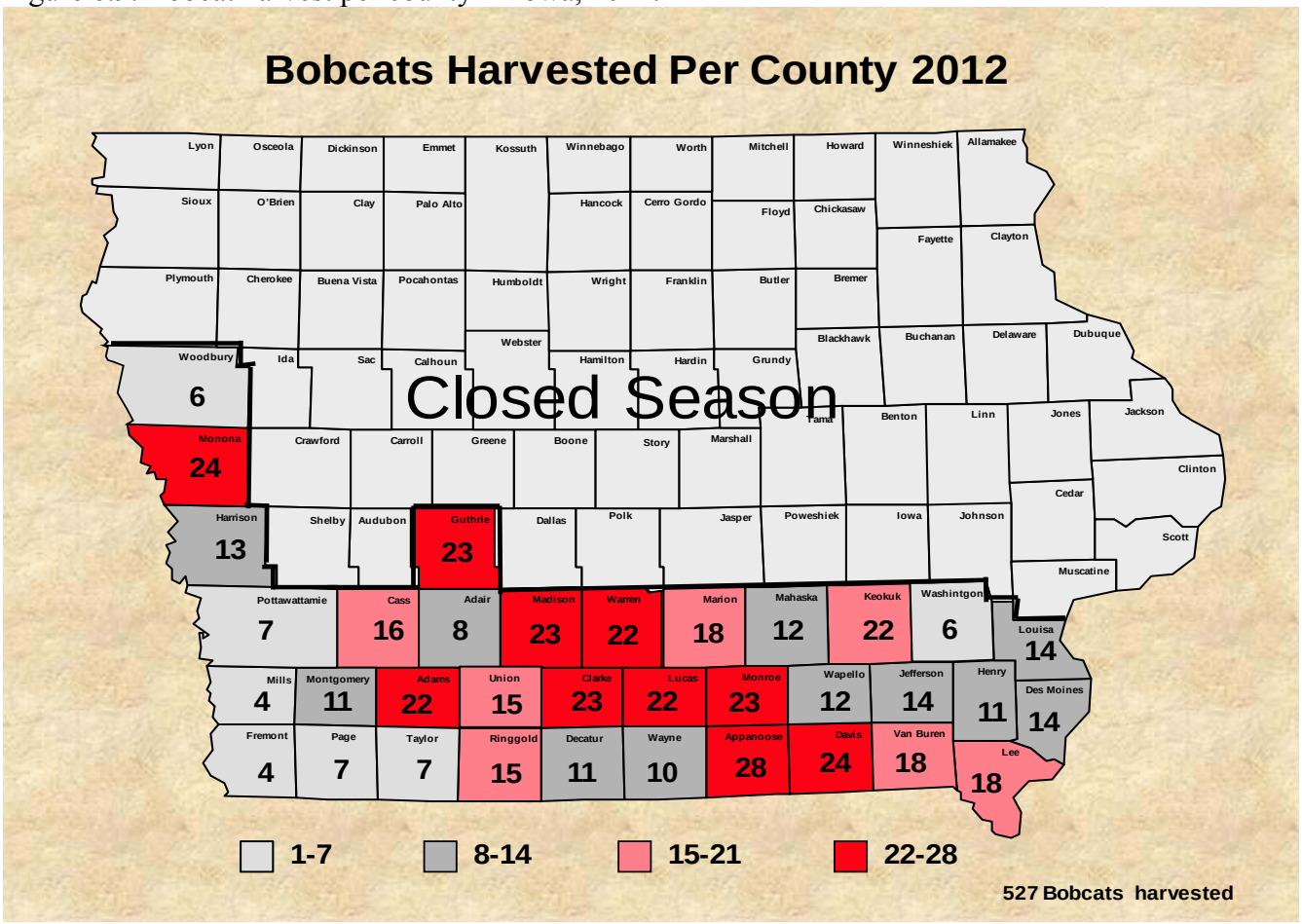


Figure 7.0. Sex ratio of harvested bobcats in Iowa (2007-present).

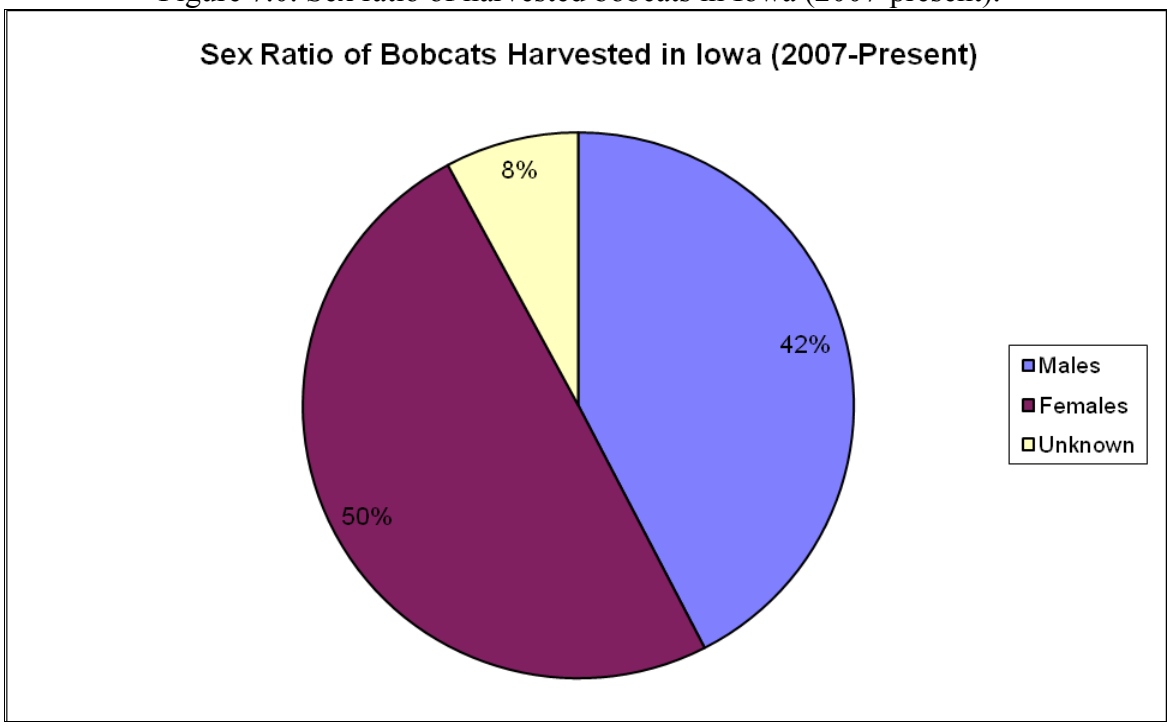


Figure 7.1. Harvest method of bobcats in Iowa (2007-present).

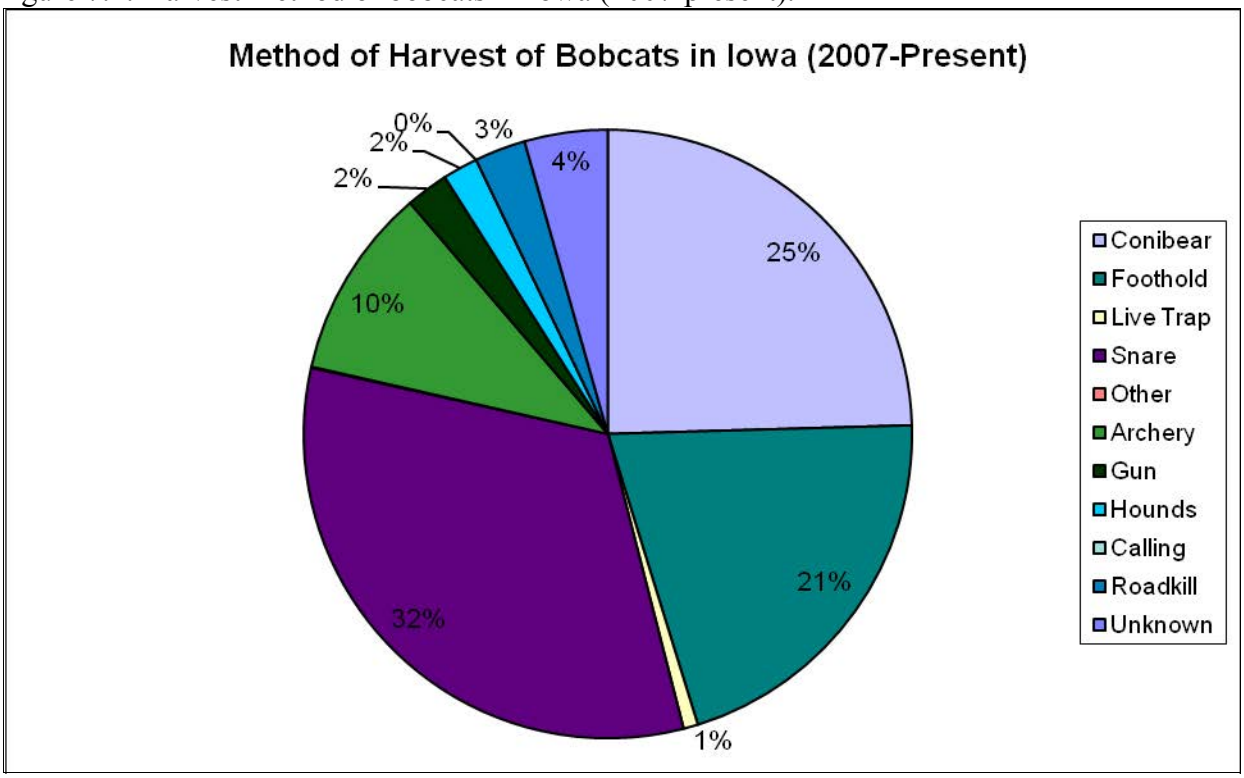


Figure 7.2. Percent of bobcats intentionally and incidentally harvested in Iowa (2007-present).

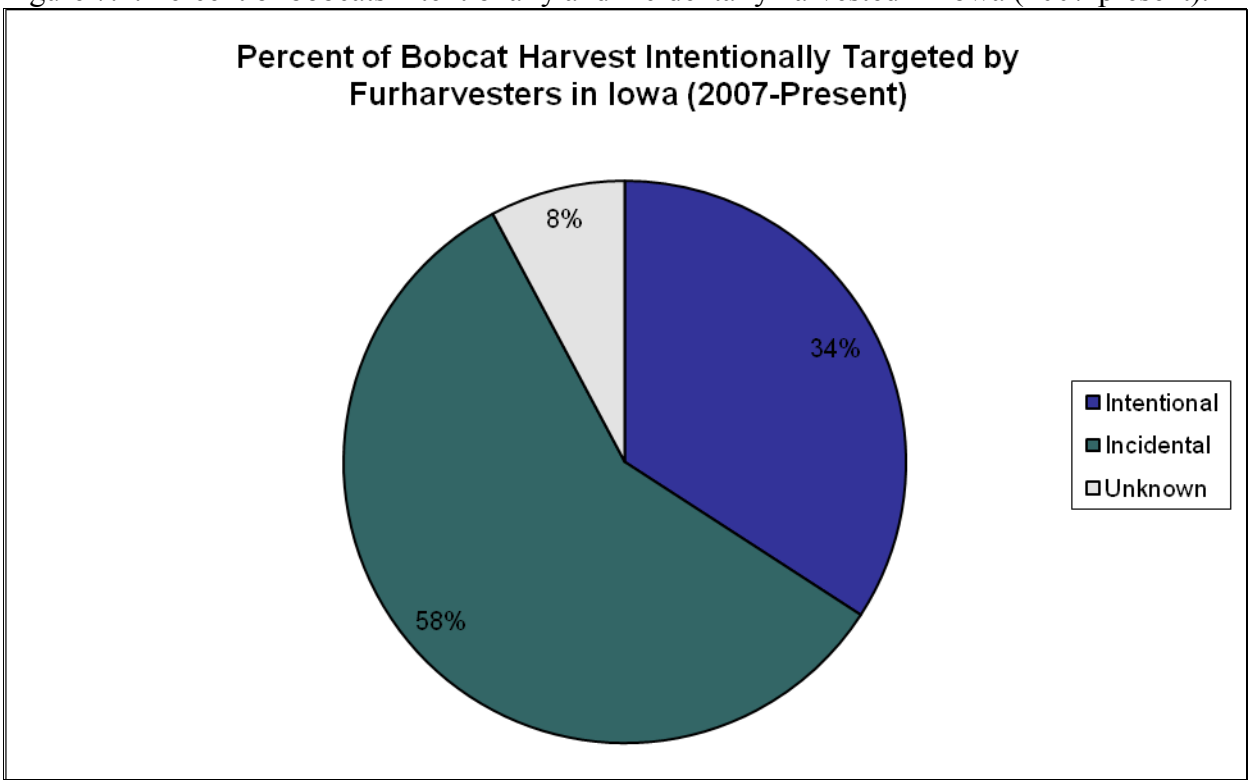


Figure 7.3. Trend for furharvesters intentionally targeting bobcats in Iowa (2007-present).

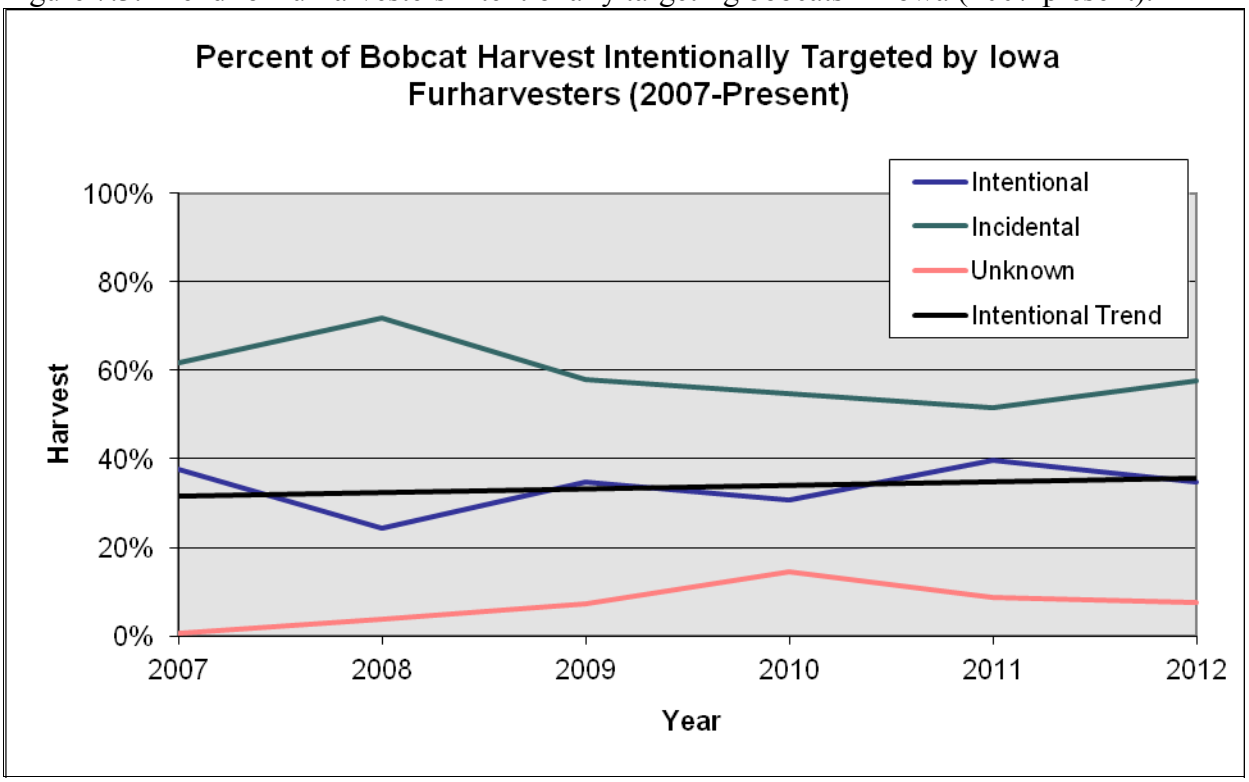


Figure 7.4. Results of bobcat Bowhunter Observation Survey in Iowa (2004-present).

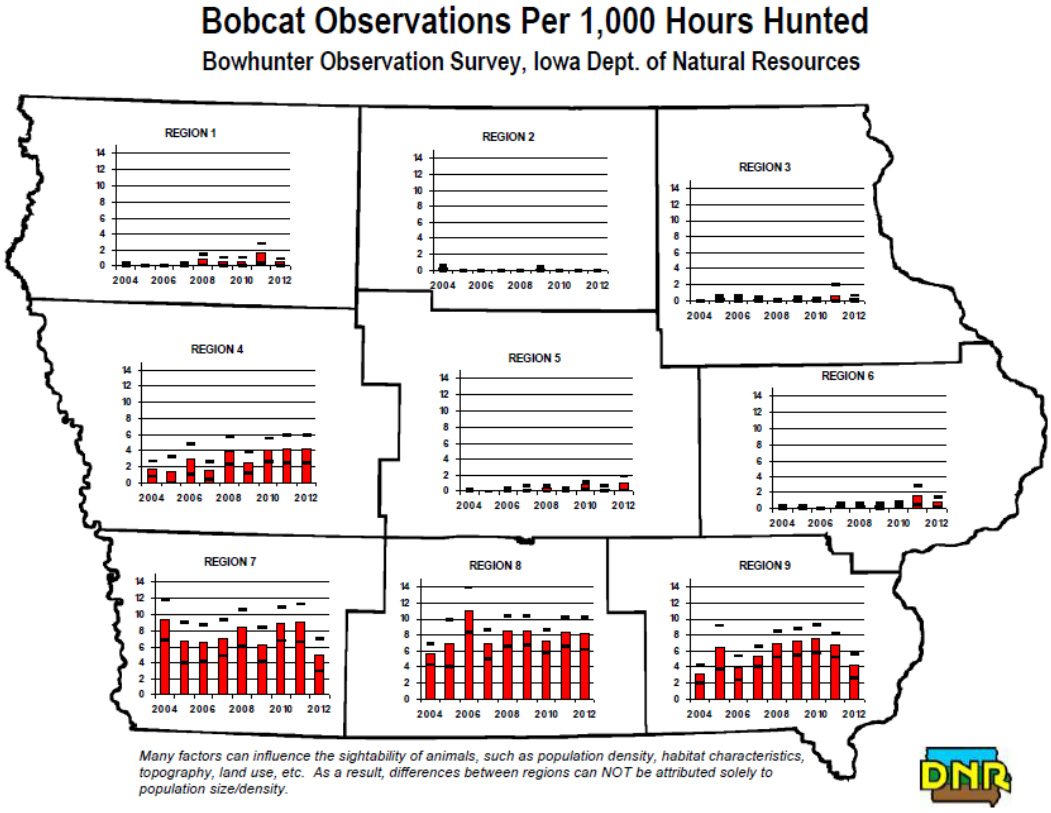


Table 3.1. Value ($) of pelts from important furbearer species harvested in Iowa (1930-present). Data for each year includes harvest from the winter of the succeeding year, e.g., 1930 = 1930+1931 (winter).

	Mink		Muskrat		Raccoon		Red Fox		All Species
Season	Mean Price	Total Value	Mean Price	Total Value	Mean Price	Total Value	Mean Price	Total Value	Total Value
1930-31	3.50	128,947	0.42	160,293	4.50	52,830	6.85	17,467	534,409
1931-32	3.60	121,608	0.52	152,512	4.40	56,984	4.50	16,753	497,260
1932-33	3.00	75,909	0.30	54,311	2.60	27,216	3.25	8,953	213,186
1933-34	4.40	207,323	0.52	197,743	3.45	53,292	4.50	30,631	615,688
1934-35	4.40	95,810	0.70	79,722	3.50	51,516	4.00	20,260	348,843
1935-36	5.93	187,465	0.98	344,928	3.95	76,444	2.95	18,343	723,451
1936-37	9.00	291,033	1.25	265,440	4.00	60,148	3.00	27,399	842,666
1937-38	5.60	120,052	0.60	106,055	3.65	48,497	3.00	21,333	412,361
1938-39	7.25	201,426	0.75	231,011	2.80	42,039	3.50	25,910	723,099
1939-40	6.25	17,981	1.05	48,303	2.45	40,339	2.50	14,265	277,519
1940-41	7.30	283,364	1.21	424,347	3.71	73,294	2.70	17,563	979,482
1941-42	6.75	227,137	1.32	345,849	4.90	110,308	4.50	27,616	903,874
1942-43	6.15	143,276	1.47	385,966	3.65	73,467	5.40	35,424	741,621
1943-44	12.50	659,500	2.25	1,625,310	3.25	277,696	10.00	86,950	2,961,462
1944-45	6.75	317,520	1.32	603,966	4.90	180,334	4.50	44,032	1,267,151
1945-46	28.16	1,355,763	2.18	912,149	2.89	118,732	3.95	45,638	2,630,655
1946-47	18.14	1,095,601	1.71	622,819	1.97	121,903	2.03	24,885	2,003,965
1947-48	29.73	821,677	2.40	40,941	2.61	145,118	1.26	11,293	1,018,093
1948-49	18.30	303,249	1.62	266,872	2.23	136,964	0.88	5,293	737,577
1949-50	12.15	218,371	1.38	237,371	1.95	114,127	0.60	2,895	611,352
1950-51	23.50	399,664	1.81	211,862	2.95	165,421	0.75	4,213	828,250
1951-52	17.48	406,532	1.37	361,081	2.67	179,453	0.39	1,444	972,134
1952-53	16.40	446,440	1.13	444,587	1.72	107,252	0.42	1,391	1,026,952
1953-54	13.49	380,891	0.69	231,461	1.57	125,504	0.36	926	773,398
1954-55	17.59	352,697	0.93	133,813	1.71	84,802	0.36	604	594,635
1955-56	18.03	190,180	1.11	98,259	2.81	142,885	0.24	402	458,230
1956-57	15.09	146,463	0.83	65,657	1.81	106,688	0.20	378	339,464
1957-58	12.50	122,975	0.75	49,476	1.15	55,354	0.25	347	251,660
1958-59	14.31	190,437	0.77	100,614	1.78	52,262	0.51	584	363,240
1959-60	16.63	281,745	0.83	136,500	2.82	168,675	1.43	5,951	621,201
1960-61	10.38	104,142	0.61	87,912	1.96	88,746	1.24	8,620	327,976
1961-62	10.20	166,923	0.58	204,056	2.31	114,712	1.36	7,460	527,389
1962-63	11.08	158,576	0.83	388,427	2.42	155,485	1.81	11,332	743,506
1963-64	10.90	229,248	1.17	649,414	1.44	111,496	1.86	12,294	1,069,812
1964-65	8.73	125,659	1.02	265,106	1.51	98,053	1.84	11,396	536,544
1965-66	7.83	102,612	1.32	345,244	2.47	199,578	5.80	62,947	753,832
1966-67	7.84	127,548	0.98	381,457	2.17	185,671	3.02	39,477	815,957
1967-68	8.08	109,152	0.70	162,267	2.63	203,654	4.12	42,003	600,422
1968-69	11.44	148,422	0.92	213,562	4.62	592,413	10.39	287,397	1,355,639
1969-70	7.06	89,068	1.15	353,012	3.43	471,463	5.86	105,448	1,090,212
1970-71	4.93	54,772	0.88	311,993	2.35	211,308	6.05	95,136	736,023
1971-72	7.86	124,620	1.37	615,735	5.20	682,484	10.59	158,617	1,700,782
1972-73	13.50	230,755	2.05	817,993	8.50	1,471,877	21.87	399,805	3,061,442
1973-74	11.35	264,103	2.25	1,436,213	9.80	2,501,077	26.95	650,707	5,083,978
1974-75	8.67	195,222	2.40	1,117,171	10.60	2,920,490	19.56	348,735	4,818,166
1975-76	9.65	177,617	2.85	1,102,035	17.85	5,213,342	39.88	631,619	7,390,136
1976-77	14.06	224,341	4.31	1,089,369	22.51	5,961,075	46.33	1,051,644	8,976,168
1977-78	12.44	162,180	4.77	1,227,020	22.27	5,887,453	49.53	1,130,819	8,871,156
1978-79	14.48	337,050	4.49	2,100,067	31.18	7,856,892	64.65	1,574,098	12,516,946
1979-80	19.04	595,380	5.64	4,181,512	29.97	9,239,061	48.71	858,708	15,499,322

(Continued)

Table 3.1 (Continued). Value ($) of pelts from important furbearer species harvested in Iowa (1930-present). Data for each year includes harvest from the winter of the succeeding year, e.g., 1930 = 1930+1931 (winter).

	Mink		Muskrat		Raccoon		Red Fox		All Species
Season	Mean Price	Total Value	Mean Price	Total Value	Mean Price	Total Value	Mean Price	Total Value	Total Value
1980-81	18.20	599,690	5.88	4,347,783	21.47	5,060,843	42.88	883,413	11,269,768
1981-82	17.99	511,905	3.84	2,004,268	27.69	8,064,075	46.29	1,036,201	12,021,854
1982-83	11.18	238,212	2.18	933,589	16.54	4,233,016	28.85	534,503	6,235,053
1983-84	16.03	356,481	2.30	1,152,686	14.23	3,726,481	33.16	704,882	6,180,169
1984-85	14.22	403,080	2.88	1,072,702	18.94	6,329,350	25.24	477,439	8,574,748
1985-86	11.76	201,274	1.89	480,838	14.34	3,883,343	16.70	272,978	5,163,651
1986-87	20.79	647,379	3.39	1,636,729	18.22	7,119,884	20.73	409,210	10,335,629
1987-88	20.76	575,301	3.32	1,711,828	16.65	5,121,323	18.07	355,365	8,097,250
1988-89	22.06	308,751	2.05	394,038	7.96	1,516,825	12.15	187,656	2,602,695
1989-90	16.34	138,890	1.02	76,500	4.74	568,800	9.70	135,800	1,018,622
1990-91	18.26	134,448	2.08	145,876	4.96	513,201	10.22	145,898	1,074,761
1991-92	15.49	131,184	1.96	178,764	5.36	591,433	9.63	148,909	1,198,863
1992-93	19.46	249,846	1.58	196,928	6.36	700,891	8.43	123,078	1,579,821
1993-94	16.78	234,014	1.83	299,831	5.81	688,270	8.98	116,614	1,388,729
1994-95	14.13	167,003	1.95	348,432	6.89	706,686	9.86	120,716	1,409,848
1995-96	18.01	367,259	1.78	281,670	6.83	808,371	8.76	123,831	1,745,504
1996-97	19.36	336,795	1.56	182,598	8.92	1,103,386	8.43	104,549	1,661,687
1997-98	17.86	302,303	1.51	171,568	7.79	1,169,643	7.04	90,788	1,729,199
1998-99	16.05	264,199	1.66	149,609	7.21	768,882	8.21	95,637	1,203,362
1999-00	19.16	255,583	1.55	134,847	8.13	823,024	9.68	115,850	1,329,304
2000-01	15.46	235,533	2.09	177,591	9.26	879,598	9.86	109,476	1,378,689
2001-02	17.23	244,011	2.43	191,647	11.69	1,674,078	10.86	134,110	2,168,918
2002-03	14.96	244,191	1.85	165,429	12.16	1,441,370	11.36	168,912	2,069,869
2003-04	10.51	112,573	2.06	113,133	10.11	1,792,655	19.16	203,441	2,589,802
2004-05	10.27	119,769	1.85	85,115	9.62	1,723,760	14.68	104,551	1,965,131
2005-06	12.03	158,339	6.15	487,867	11.43	1,871,612	12.81	109,999	2,827,822
2006-07	13.07	100,703	5.79	375,339	10.18	1,591,138	15.13	36,503	2,204,483
2007-08	14.76	116,876	3.08	170,886	12.34	1,442,250	13.55	29,038	1,757,223
2008-09	9.48	78,077	2.51	122,473	9.23	1,151,822	11.57	43,145	1,293,846
2009-10	8.22	56,760	3.97	176,411	8.80	1,015,071	10.04	17,992	1,095,999
2010-11	12.83	144,542	5.31	645,472	12.52	2,965,833	16.81	64,030	4,020,719
2011-12a	12.62	193,285	5.93	511,780	10.86	4,098,994	17.74	106,182	5,288,094
2012-13	15.91	305,842	7.48	423,249	13.60	4,664,032	25.85	128,958	5,983,493
Average									
5-Year	12.30	116522.35	4.93	333869.14	11.23	2464158.40	15.93	59637.20	3239895.65
10-Year	12.24	130428.10	4.30	293645.26	10.99	2109589.58	15.34	89202.65	2826952.81
20-Year	14.67	194821.67	3.10	255467.57	9.51	1548967.33	12.32	100756.09	2223406.78
50-Year	13.73	231258.34	2.69	710941.51	10.82	2416073.73	17.67	291770.86	3844797.03
Long-term	13.07	263328.63	2.08	548062.69	7.76	1523768.22	11.84	185729.36	2677263.75

[1] Long-term data dates back to 1930.

[a] For furharvesters which reported number of pelts purchased without average price paid per pelt, total values for those furharvesters were estimated using the overall average price paid per pelt calculated from all furharvesters (e.g., two furharvesters reported purchasing 37 total red fox pelts but did not report the average price paid per pelt. Those 37 pelts were multiplied by the average price of $17.74 for estimating total values for those furharvesters).

Table 3.2. Number of licensed furharvesters and fur dealers in Iowa (2001-Present).

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Resident Furharvesters	15,274	14,879	14,404	14,607	13,376	14,542	15,279	15,523	14,098	15,033	16,928	19,197
Non-Resident Furharvesters	92	105	99	91	83	100	134	168	99	144	121	171
Total	15,366	14,984	14,503	14,698	13,459	14,642	15,413	15,691	14,197	15,177	17,049	19,268
Resident Fur Dealers	48	47	43	46	41	38	39	40	34	34	34	36
Non-Resident Fur Dealers	3	2	2	3	2	5	4	4	3	2	5	4
Total	51	49	45	49	43	43	43	44	37	36	39	40

Table 3.3. Total number of pelts sold in Iowa and average, minimum, and maximum prices paid per species by fur dealers (2010-Present).

			Price Paid per Pelt ($)		
		No. of Pelts Sold in Iowa	Average	Minimum	Maximum
Raccoon					
	2010-11	236,531	10.75	5.82	19.00
	2011-12	326,368	10.86	5.00	20.00
	2012-13	273,339	13.60	8.32	30.00
Muskrat					
	2010-11	97,967	5.31	1.57	9.00
	2011-12	78,422	5.93	2.52	9.50
	2012-13	49,849	7.48	4.22	11.00
Mink					
	2010-11	11,254	10.80	3.50	16.00
	2011-12	12,977	12.62	4.59	21.00
	2012-13	7,609	15.91	9.20	29.00
Beaver					
	2010-11	5,382	7.96	4.40	17.00
	2011-12	11,652	11.46	7.00	24.00
	2012-13	10,861	13.66	7.00	30.00
Coyote					
	2010-11	8,088	9.08	1.25	17.00
	2011-12	7,765	12.08	5.00	28.00
	2012-13	12,007	15.93	5.00	55.00
Red Fox					
	2010-11	3,809	13.53	8.00	27.00
	2011-12	4,209	17.74	4.00	45.00
	2012-13	3,742	25.85	14.00	60.00
Opossum					
	2010-11	3,156	0.96	0.20	1.56
	2011-12	3,932	1.00	0.25	2.50
	2012-13	4,548	1.25	0.50	4.00
Badger					
	2010-11	944	11.23	5.00	23.00
	2011-12	1,220	11.73	7.00	27.00
	2012-13	1,293	15.24	4.00	50.00
Striped Skunk					
	2010-11	708	2.39	0.50	5.00
	2011-12	858	2.20	0.50	4.50
	2012-13	763	2.61	0.50	7.00
River Otter					
	2010-11	321	36.96	22.14	75.00
	2011-12	587	50.94	21.25	93.00
	2012-13	930	56.71	25.00	100.00
Bobcat					
	2010-11	127	51.99	15.00	125.00
	2011-12	218	66.81	23.50	160.00
	2012-13	368	83.89	10.00	237.00
Gray Fox					
	2010-11	26	12.86	5.00	19.00
	2011-12	85	15.04	12.00	18.08
	2012-13	56	27.01	15.00	65.00
Weasel					
	2010-11	7	1.90	1.00	2.50
	2011-12	3	5.00	1.50	12.00
	2012-13	30	2.12	2.00	2.36

Table 3.4. Statewide furbearer harvest in Iowa listed by species as reported in licensed fur dealer reports (1930-present). Data for each year includes harvest for the winter of the succeeding year, e.g., 1930=1930+1931 (winter).

Season	Muskrat	Mink	Striped Skunk	Raccoon	Spotted Skunk	Red Fox	Gray Fox	Opossum	Weasel	Coyote	Badger	Beaver	Bobcat[a]	Otter[a]
1930-31	381,651	36,842	99,321	11,740	55,938	2,550	182	26,230	2,018		75			
1931-32	293,294	33,780	87,701	12,951	52,022	3,723	208	37,558	801	3	56			
1932-33	181,038	25,303	41,511	10,468	29,505	2,755	35	42,415	256	1	17			
1933-34	380,275	47,119	108,776	15,447	88,532	6,807	486	83,625	1,468		227			
1934-35	113,889	21,755	75,900	14,719	46,676	5,065	417	54,025	1,149		207			
1935-36	351,968	31,613	68,231	19,353	35,767	6,218		39,961	3,602		611			
1936-37	212,332	32,337	153,497	15,037	38,724	9,133	170	20,985	7,190	22	768			
1937-38	176,759	21,438	102,212	13,287	26,928	7,111	1,846	11,755	4,159	146	569			
1938-39	308,015	27,783	124,322	15,014	43,971	7,403	1,900	23,303	4,529	162	412			
1939-40	46,003	2,877	91,838	16,465	56,708	5,706	1,413	39,050	6,692	183	486			
1940-41	350,700	38,817	74,251	19,756	63,256	6,505	1,730	30,131	6,290	259	470			
1941-42	262,007	33,650	68,840	22,512	60,944	6,137	1,967	33,839	4,440	202	586			
1942-43	262,562	23,297	32,437	20,128	38,508	6,560	1,823	29,691	2,982	209	287			
1943-44	722,360	52,760	53,199	38,303	60,238	8,695	2,516	35,579	3,966	926	538	235		
1944-45	457,573	47,040	35,737	36,803	41,235	9,785	2,332	27,513	2,905	388	354	259		
1945-46	418,417	48,145	30,755	41,084	44,827	11,554	2,350	22,501	3,607	388	314	623		
1946-47	387,614	60,397	32,458	61,880	40,661	12,259	2,223	26,960	4,334	915	553	494		
1947-48	17,059	27,638	11,903	55,601	13,944	8,963								
1948-49	164,736	16,571	9,712	61,419	7,815	6,015	192	7,563	881	265	182	670		
1949-50	171,820	17,973	6,136	58,527	4,532	4,826	983	6,681	433	57	136	2,489		
1950-51	117,051	17,007	4,270	56,075	3,321	5,618	917	4,090	509	131	90	3,103		
1951-52	67,211	23,257	2,558	67,211	1,842	3,703	443	2,600	412	34	81	2,465		
1952-53	62,356	27,222	2,730	62,356	2,143	3,313	420	2,632	584	34	67	3,790		
1953-54	335,451	30,459	4,511	79,939	1,892	2,573	399	3,203	470	17	82	6,565		
1954-55	143,886	20,051	2,278	49,592	1,122	1,679	196	1,758	229	45	63	3,635		
1955-56	80,414	10,548	2,677	50,849	1,480	1,678	156	1,774	304	6	57	4,336		
1956-57	79,109	9,706	3,219	58,944	1,888	1,892	183	2,062	263	24	153	2,874		
1957-58	65,969	9,838	2,690	48,134	1,778	1,389	90	1,494	149	9	47	1,938		
1958-59	130,668	13,308	1,988	29,361	1,710	1,147	132	953	181	6	58	2,289		
1959-60	164,485	16,942	1,789	59,814	1,171	4,162	262	2,065	113	61	77	2,980		
1960-61	144,119	10,033	2,044	45,279	1,475	6,952	232	1,701	183	97	162	4,519		
1961-62	351,822	16,365	1,307	49,659	918	5,486	223	1,979	89	113	317	4,790		
1962-63	467,985	14,312	1,817	64,250	1,182	6,261	356	2,339	93	92	121	4,269		
1963-64	555,055	21,032	1,940	77,428	1,835	6,610	232	3,052	203	61	99	9,294		
1964-65	259,908	14,394	443	64,936	1,446	6,194	143	2,600	172	340	106	4,326		
1965-66	261,459	13,105	1,097	80,801	1,121	10,853	303	3,559	52	732	147	4,273		
1966-67	389,242	16,269	1,349	85,563	764	13,072	441	4,654	85	864	212	8,991		
1967-68	231,811	13,509	830	77,435	376	10,195	393	2,331	66	512	201	7,334		
1968-69	232,133	12,974	1,290	128,228	308	27,661	729	6,413	47	4,922	287	5,221		
1969-70	306,967	12,616	1,146	137,453	197	17,993	702	5,891	48	3,678	502	4,905		
1970-71	345,538	11,110	700	94,174	113	15,725	503	3,721	41	4,430	446	4,073		
1971-72	449,442	15,855	756	131,247	109	14,978	780	6,157	22	5,240	373	7,138		
1972-73	399,021	17,093	1,579	173,162	131	18,281	722	10,849	40	5,616	551	4,527		
1973-74	638,317	23,269	2,779	255,212	188	24,145	1,624	26,947	52	8,713	1,121	5,834		
1974-75	465,488	22,517	3,935	275,518	280	17,829	1,682	38,844	71	12,020	1,438	5,556		
1975-76	386,679	18,406	1,937	292,064	106	15,838	1,574	26,485	50	9,444	1,267	5,154		
1976-77	252,754	15,956	5,441	264,819	46	22,699	1,795	36,493	4	12,226	2,136	7,773		
1977-78	257,237	13,037	3,588	264,367	7	22,831	1,640	36,186	36	12,011	1,900	3,432		
1978-79	467,721	23,277	6,545	251,985		24,348	2,115	26,160	82	10,627	1,936	4,327		
1979-80	741,403	31,270	10,022	308,277		17,629	3,093	10,978	122	7,745	3,274	12,498		

(Continued)

Table 3.4 (Continued). Statewide furbearer harvest in Iowa listed by species as reported in licensed fur dealer reports (1930-present). Data for each year includes harvest for the winter of the succeeding year, e.g., 1980-present

Season	Muskrat	Mink	Striped Skunk	Raccoon	Spotted Skunk	Red Fox	Gray Fox	Opossum	Weasel	Coyote	Badger	Beaver	Bobcat[a]	Otter[a]
1980-81	739,419	32,950	5,616	235,717		20,602	2,175	11,664	32	6,847	2,427	11,831		
1981-82	521,945	28,455	1,913	291,227		22,385	1,710	18,730	16	9,860	1,946	5,705		
1982-83	428,252	21,307	1,194	255,926		18,527	1,953	16,761	16	8,930	1,754	5,809		
1983-84	464,793	22,245	1,152	261,875		21,257	1,185	16,179		9,636	1,298	8,563		
1984-85	372,466	28,346	1,032	334,179		18,916	1,896	21,455		7,809	1,754	16,323		
1985-86	254,412	17,116	1,861	270,805		16,346	1,114	16,296		7,858	975	14,931		
1986-87	482,811	31,139	2,540	390,773		19,740	1,593	30,760		10,582	2,520	17,778		
1987-88	515,611	27,712	1,198	307,587		19,666	1,091	27,623		10,348	1,642	13,509		
1988-89	192,214	13,996	712	190,556		15,445	769	19,824		4,650	1,043	18,459		
1989-90	73,415	8,293	245	118,653		13,359	374	8,114		4,073	468	8,706		
1990-91	70,133	7,363	189	103,468		14,268	393	6,243		5,068	503	9,246		
1991-92	91,206	8,469	211	110,342		15,463	429	7,411		5,213	572	8,943		
1992-93	124,638	12,839	791	110,203		14,660	1,036	8,192		10,286	621	15,839		
1993-94	163,842	13,946	643	118,463		12,986	836	6,243		7,313	571	11,788		
1994-95	178,683	11,819	510	112,686		12,243	789	6,782		6,986	502	11,643		
1995-96	158,241	20,392	786	118,136		14,136	948	9,781		8,462	614	10,678		
1996-97	123,460	18,946	693	123,698		12,402	721	7,643		7,159	832	10,481		
1997-98	113,621	16,832	649	149,492		12,896	768	6,012		6,992	796	11,122		
1998-99	90,126	16,461	536	106,641		11,646	681	5,123		5,786	642	10,336		
1999-00	86,998	15,931	528	101,233		11,968	631	4,649		5,231	597	10,108		
2000-01	84,972	15,235	469	94,989		11,103	576	3,922		5,348	506	10,478		
2001-02	78,867	14,162	398	143,206		12,349	529	3,361		6,702	487	11,287		
2002-03	89,421	14,986	417	118,531		14,869	507	2,905		5,746	402	10,431		
2003-04	54,919	10,711	842	177,315		10,608	365	6,184		8,178	912	8,591		
2004-05	45,516	11,662	930	179,185		7,122	198	5,858		5,197	761	6,221		
2005-06	79,328	13,162	793	163,746		8,587	219	5,916		7,381	606	8,698		
2006-07	64,799	7,706	1,434	156,379		2,013	20	2,254		4,258	704	5,675		466
2007-08	55,476	7,967	1,256	143,271		2,143	178	2,673		4,513	536	5,303	149	416
2008-09	48,794	8,236	1,042	124,789		3,729	217	2,251		5,176	431	5,829	232	479
2009-10	44,436	6,905	388	115,349		1,792	13	1,261	56	2,501	454	3,431	221	508
2010-11	98,079	11,262	708	236,943		3,810	26	3,156	7	8,089	946	5,382	268	456
2011-12	78,422	12,977	858	326,368		4,209	85	3,932	3	7,765	1,220	11,652	391	770
2012-13	49,849	7,609	763	273,339		3,742	56	4,548	30	12,007	1,293	10,861	368	930
Average														
5-Year	62,509	9,159	836	203,343		3,238	96	2,970	24	6,675	813	7,076	272	593
10-Year	64,458	10,289	857	183,201		5,693	171	3,722	24	6,437	751	7,461	272	575
20-Year	91,071	12,845	735	152,093		9,001	448	4,888	24	6,718	687	9,325	272	575
50-Year	259,359	16,218	1,578	178,274	513	13,689	841	10,929	58	6,495	930	8,717	272	575

[1] Long-term data dates back to 1930.

[a] Otter and bobcat harvest data was recorded from the harvest reporting system, not licensed fur dealers.

Table 3.5. Percent of fox, raccoon, and coyote furs purchased from hunters and trappers statewide in Iowa; determined from fur dealer reports (1975-present). Data for each year includes harvest from the succeeding year, e.g., 1975=1975+1976 (winter).

	Raccoon			Red and Gray Fox			Coyote		
	% Purchased From			% Purchased From			% Purchased From		
Season	Trapper	Hunter	Unknown	Trapper	Hunter	Unknown	Trapper	Hunter	Unknown
1975-76	28	60	12	45	48	7	18	72	10
1976-77	28	66	6	55	41	4	28	68	4
1977-78	24	68	8	36	55	9	18	72	10
1978-79	31	61	8	37	58	5	17	74	9
1979-80	30	58	12	53	32	15	30	59	11
1980-81	33	60	7	66	29	5	33	60	7
1981-82	42	46	12	38	46	16	20	74	6
1982-83	35	53	12	47	45	8	25	69	6
1983-84	37	50	13	33	59	8	17	67	16
1984-85	33	41	26	49	31	20	26	60	14
1985-86	37	52	11	39	54	7	23	65	12
1986-87	46	49	5	59	35	6	34	62	4
1987-88	49	47	4	53	43	4	32	62	6
1988-89	49	46	5	58	34	8	30	67	3
1989-90	35	45	20	48	28	24	24	61	15
1990-91	38	55	7	43	46	11	28	66	6
1991-92	41	51	8	44	49	7	25	67	8
1992-93	45	50	5	40	52	8	36	54	6
1993-94	43	52	5	43	50	7	34	57	9
1994-95	44	46	10	39	55	6	33	59	8
1995-96	47	45	8	41	52	7	30	65	5
1996-97	48	48	4	44	48	8	32	58	10
1997-98	48	46	5	40	47	13	29	62	9
1998-99	46	47	5	46	48	6	33	63	4
1999-00	42	53	5	45	46	9	34	61	5
2000-01	38	46	16	34	58	8	31	58	11
2001-02	43	47	10	52	43	5	36	56	8
2002-03	48	42	10	56	38	6	32	59	9
2003-04	49	43	8	52	44	4	35	58	7
2004-05	43	49	8	49	45	6	32	60	8
2005-06	39	52	9	53	38	9	30	64	6
2006-07	49	47	4	51	45	4	34	58	8
2007-08	48	46	6	44	51	6	37	57	6
2008-09	44	48	8	40	55	5	35	59	6
2009-10	45	46	9	36	48	6	36	58	6
2010-11	63	14	23	46	24	30	18	53	29
2011-12	63	28	9	73	15	12	41	43	16
2012-13	69	31	0	80	20	0	47	53	0
5-Year Average	57	33	10	55	32	11	35	53	11
10-Year Average	51	40	8	52	39	8	35	56	9
20-Year Average	48	44	8	48	44	8	33	58	9
Total Average	43	48	9	48	44	9	30	62	9

Table 3.6. Trapping and hunting furbearer harvest seasons in Iowa (2007-Present).

		Trapping Season Dates		Hunting Season Dates		Bag Limit	
Season	Species	Open	Close	Open	Close	Daily	Possession
2008-09	ra, stsk, ba, op, rf, gf	Nov 1	Jan 31	Nov 1	Jan 31	No Limit	No Limit
	mi, mu, we	Nov 1	Jan 31			No Limit	No Limit
	be	Nov 1	Apr 01			No Limit	No Limit
	co	Nov 1	Jan 31	Continuous Open Season		No Limit	No Limit
[1] [9]	ot	Nov 1	Jan 31			2	2
[2] [9]	bc	Nov 1	Jan 31	Nov 1	Jan 31	1	1
	spsk, gw	Continuous Closed Season		Continuous Closed Season			
2009-10	ra, stsk, ba, op, rf, gf	Nov 7	Jan 31	Nov 7	Jan 31	No Limit	No Limit
	mi, mu, we	Nov 7	Jan 31			No Limit	No Limit
	be	Nov 7	Apr 01			No Limit	No Limit
	co	Nov 7	Jan 31	Continuous Open Season		No Limit	No Limit
[1] [9]	ot	Nov 7	Jan 31			2	2
[3] [9]	bc	Nov 7	Jan 31	Nov 7	Jan 31	1	1
	spsk, gw	Continuous Closed Season		Continuous Closed Season			
2010-11	ra, stsk, ba, op, rf, gf	Nov 6	Jan 31	Nov 6	Jan 31	No Limit	No Limit
	mi, mu, we	Nov 6	Jan 31			No Limit	No Limit
	be	Nov 6	Apr 01			No Limit	No Limit
	co	Nov 6	Jan 31	Continuous Open Season		No Limit	No Limit
[1] [9]	ot	Nov 6	Jan 31			2	2
[4] [9]	bc	Nov 6	Jan 31	Nov 6	Jan 31	1	1
	spsk, gw	Continuous Closed Season		Continuous Closed Season			
2011-12	ra, stsk, ba, op, rf, gf	Nov 5	Jan 31	Nov 5	Jan 31	No Limit	No Limit
	mi, mu, we	Nov 5	Jan 31			No Limit	No Limit
	be	Nov 5	Apr 15			No Limit	No Limit
	co	Nov 5	Jan 31	Continuous Open Season		No Limit	No Limit
[5] [9]	ot	Nov 5	Jan 31			3	3
[6] [9]	bc	Nov 5	Jan 31	Nov 5	Jan 31	1	1
	spsk, gw	Continuous Closed Season		Continuous Closed Season			
2012-13	ra, stsk, ba, op, rf, gf	Nov 3	Jan 31	Nov 3	Jan 31	No Limit	No Limit
	mi, mu, we	Nov 3	Jan 31			No Limit	No Limit
	be	Nov 3	Apr 15			No Limit	No Limit
	co	Nov 3	Jan 31	Continuous Open Season		No Limit	No Limit
[7] [9]	ot	Nov 3	Jan 31			3	3
[8] [9]	bc	Nov 3	Jan 31	Nov 3	Jan 31	1	1
	spsk, gw	Continuous Closed Season		Continuous Closed Season			

* Species codes: ba - badger; bc - bobcat; be - beaver; co - coyote; gr - gray fox; gw - gray wolf; mi - mink; mu - muskrat; op - opossum; ot - otter; ra - raccoon; rf - red fox; spsk - spotted skunk; stsk - striped skunk; we - weasel.

[1] State-wide quota of 500 animals, plus a 48-hour grace period. Season bag limit of two per licensed furharvester.

[2] Quota of 200 animals in the southern two tiers of counties only, plus a 48-hour grace period. Season bag limit of one per licensed furharvester, either hunted or trapped.

[3] Quota of 200 animals in the southern two tiers of counties and Pottawattamie, Harrison, Monona, and Woodbury counties along the Missouri river only, plus a 48-hour grace period. Season bag limit of one per licensed furharvester, either hunted or trapped.
Quota of 250 animals in the southern three tiers of counties, Harrison, Monona, and Woodbury counties along the Missouri river, and Guthrie County only, plus a 48-hour grace period. Season bag limit of one per licensed furharvester, either hunted or trapped.

[4] State-wide quota of 650 animals, plus a 48-hour grace period. Season bag limit of three per licensed furharvester.
Quota of 350 animals in the southern three tiers of counties, Harrison, Monona, and Woodbury counties along the Missouri river, and Guthrie County only, plus a 48-hour grace period. Season bag limit of one per licensed furharvester, either hunted or trapped.

[5] State-wide quota of 850 animals, plus a 48-hour grace period. Season bag limit of three per licensed furharvester.
Quota of 450 animals in the southern three tiers of counties, Harrison, Monona, and Woodbury counties along the Missouri river, and Guthrie County only, plus a 48-hour grace period. Season bag limit of one per licensed furharvester, either hunted or trapped.

Table 3.7. Results of the Iowa raccoon spotlight survey with raccoon harvest and pelt price (1977-present). The spotlight survey is conducted in April each year. Harvest data are from previous harvest season.

Year	Total Number of Routes	Mean Number Observed	Raccoon Harvest	Average Pelt Price ($)
1977	57	10	264,367	22.27
1978	83	11	251,985	31.18
1979	82	8	308,277	29.97
1980	85	9	235,717	21.47
1981	85	10	291,227	27.69
1982	84	13	255,926	16.54
1983	82	13	261,875	14.23
1984	84	12	334,179	18.94
1985	83	11	270,805	13.91
1986	80	11	390,773	18.22
1987	79	12	307,587	16.65
1988	83	15	190,556	7.96
1989	84	17	118,653	4.74
1990	86	17	103,468	4.62
1991	84	18	110,342	4.96
1992	82	22	110,203	5.36
1993	84	21	118,463	5.81
1994	89	21	112,686	6.89
1995	87	24	118,136	6.83
1996	89	24	123,698	8.26
1997	88	22	149,492	7.79
1998	88	23	106,641	7.21
1999	88	22	101,233	8.13
2000	88	24	94,989	9.26
2001	88	21	143,206	11.69
2002	88	21	118,531	12.16
2003	88	21	177,313	10.11
2004	88	21	179,185	9.62
2005	82	19	163,746	11.43
2006	84	22	156,379	10.18
2007	83	23	143,271	12.24
2008	81	24	124,789	9.23
2009	78	29	115,349	8.80
2010	81	24	236,943	12.52
2011	85	29	326,368	10.86
2012	89	34	273,339	13.60
5-Year Average	83	28	215,358	11.00
10-Year Average	84	25	189,668	10.86
20-Year Average	86	23	154,188	9.63
Overall Average	84	19	191,380	12.54

Table 3.8. Otter harvest seasons and harvest data in Iowa (2006-Present).

Season		No. of Counties[1]	Open Date	Close Date	Season Length	Average Catch Rate per Day	Male Harvest	Female Harvest	Unknown Sex Harvest	Total Harvest[2]	Quota
2006	a b d	Statewide	4-Nov	17-Nov	14	33	197	191	80	468	400
2007	b e	Statewide	3-Nov	25-Nov	23	18	192	185	42	419	400
2008	b e	Statewide	1-Nov	27-Nov	25	19	222	218	40	480	500
2009	b e	Statewide	7-Nov	4-Dec	28	18	225	240	49	514	500
2010	b e	Statewide	6-Nov	24-Nov	19	24	200	206	51	457	500
2011	c e	Statewide	5-Nov	23-Nov	19	41	360	335	75	770	650
2012	c e	Statewide	3-Nov	25-Nov	23	42	446	460	67	973	850
						Total	1842	1835	404	4081	3800

* Harvest data excludes known road-killed otters.

a First regulated otter harvest season in Iowa.

b Season bag limit of two per licensed furharvester.

c Season bag limit of three per licensed furharvester.

d Harvest data includes animals harvested during a 72-hour grace period following season closure.

e Harvest data includes animals harvested during a 48-hour grace period following season closure.

1 Statewide includes 99 Iowa counties.

2 Data includes harvest from unknown sources; may include road-killed animals. Source of collection was not specified in some harvest reports.

Table 3.9. Otter harvest methods by season in Iowa (2006-Present).

		Harvest Method							
Season		Conibear	Foothold	Live Trap	Snare	Other[1]	Unknown[1]	Total Harvest	Harvest Quota
2006	a b	160	254	0	26	4	22	466	400
2007	c	141	231	3	40	0	1	416	400
2008	c	174	239	0	49	0	17	479	500
2009	c	197	249	2	52	0	8	508	500
2010	c	196	198	0	39	0	23	456	500
2011	c	305	340	1	96	0	28	770	650
2012	c	371	470	5	116	2	7	971	850
Total		1173	1511	6	302	4	99	3095	3800

a First regulated otter harvest season in Iowa

b Harvest data includes animals harvested during a 72-hour grace period following season closure.

c Harvest data includes animals harvested during a 48-hour grace period following season closure.

1 Data may include road-killed animals. Source of collection was not specified in some harvest reports.

Table 4.0. Bobcat harvest seasons and harvest data in Iowa (2007-Present).

	Harvest Season										
Season		No. of Counties	Open Date	Close Date	Season Length	Average Catch Rate per Day	Male Harvest	Female Harvest	Unknown Sex Harvest	Total Harvest[1]	Quota
2007	[a]	21	3-Nov	21-Nov	19	8	69	71	14	154	150
2008		25	1-Nov	21-Nov	21	11	103	117	14	234	200
2009		25	7-Nov	30-Nov	24	9	107	107	22	236	200
2010		35	6-Nov	23-Nov	18	15	100	140	34	274	250
2011		35	5-Nov	29-Nov	25	16	162	209	27	398	350
2012		35	3-Nov	1-Dec	29	18	233	263	32	528	450
						Total	541	644	111	1296	1600

* Season bag limit of one per licensed furharvester (2007-present).

* Harvest data includes animals harvested during a 48-hour grace period following season closure.

* Harvest data excludes known road-killed bobcats.

[a] First regulated bobcat harvest season in Iowa.

[1] Data includes harvest from unknown sources; may include road-killed animals. Source of collection was not specified in some harvest reports.

Table 4.1. Bobcat harvest methods by season in Iowa (2007-Present).

	Harvest Method										
Season		Conibear	Foothold	Live Trap	Snare	Archery	Gun	Calling	Hounds	Unknown[1]	Total Harvest	Harvest Quota
2007	[a]	37	26	0	40	20	4		6	16	149	150
2008		72	35	3	85	23	3		7	4	232	200
2009		56	35	0	82	24	7		4	13	221	200
2010		58	50	1	92	38	6		4	19	268	250
2011		114	85	3	122	32	5		6	24	391	350
2012		107	143	7	167	47	16	15	7	4	513	450
Total		444	374	14	588	184	41	15	34	80	1774	1600

* Harvest data includes animals harvested during a 48-hour grace period following season closure.

[a] First regulated bobcat harvest season in Iowa

[1] Data may include road-killed animals. Source of collection was not specified in some harvest reports.

Waterfowl Management, Seasons, and Harvests in Iowa

Figures and Tables referenced in this document are separate .pdf files.

Duck Breeding Populations

Breeding population estimates are made each year for 10 key species of ducks in the principal breeding areas of Alaska, Canada, and the northcentral United States (Table 4.1, Fig. 4.1). Surveys are conducted in May and early June by the U.S. Fish and Wildlife Service (USFWS), Canadian Wildlife Service, and provincial and state conservation agencies. Ducks are counted from fixed-wing aircraft on the same transects each year. Estimates of ducks and ponds seen from the air are corrected for visibility bias by conducting ground counts on a sample of transects. The estimates in Table 4.1 are not the entire continental breeding populations of ducks; a portion of each population (potentially 25% for mallards) nests outside the surveyed areas.

Although numbers of breeding ducks have fluctuated substantially from year to year, trend analysis suggests that total duck numbers are stable. This stable trend, however, is the result of increasing numbers of some species (e.g., gadwall, green-winged teal, shovelers and blue-winged teal) and decreasing numbers of others (e.g., pintails and scaup). Despite the improvements in duck numbers in the 1990's, there are still concerns about the long-term loss of both wetland and upland habitat in the prairie pothole region and the long-term outlook for duck populations in the future.

Duck populations have fluctuated substantially over time. The drought of the 1980's pushed many populations to near record low levels. The resiliency of these birds, however, was dramatically illustrated when most populations rebounded after water returned to the prairies in the 1990's. Pintails and scaup were exceptions to this rule; pintails because drought continued to plague their primary nesting areas in Alberta and scaup for reasons apparently related to nutritional deficiencies on migration habitats. Duck populations will continue to fluctuate in the future as the numbers of wetlands on the landscape in north-central North America rise and fall with changes in the weather

Giant Canada Goose Population

Giant Canada geese nested throughout Iowa prior to European settlement, but were extirpated from most of the Midwest, including Iowa, by 1900. The giant Canada goose restoration program initiated by the Iowa Conservation Commission in 1964, the forerunner to the Iowa Dept. of Natural Resources (IADNR), has successfully restored this species to most of its former nesting range in Iowa (see Giant Canada Goose Restoration). The giant Canada goose population in Iowa exhibited steady growth during 1965-2004, but has been stable in recent years (Fig. 4.2). Each summer, biologists and technicians estimate the numbers of adult Canada geese and goslings in their wildlife units. To obtain a statistically valid estimate of this population, an aerial survey is also conducted each spring. The results of the aerial survey conducted during April 2013 indicated the population was 73,907 (±11,780) (± 95% Conf. Limit), which is lower than the 2011 estimate of 105,738 (±11,780). An aerial survey was not conducted in 2012 due to complications with the contracted flight service. Prior to 2005, the population estimates made by wildlife biologists were nearly identical to the population estimates obtained from the aerial surveys. This indicates that the biologists' estimates accurately represented the growth rate and size of this population for most of the 20th century.

Waterfowl Harvests

Waterfowl harvests and hunter activity in Iowa are estimated annually by the USFWS (Table 4.2). Harvest estimates are calculated by combining the results of 2 surveys: 1) a survey of randomly selected hunters from the Harvest Information Program (HIP), which is used to calculate the total number of waterfowl killed, and 2) a survey that solicits duck wings and goose tails, which is used to estimate the species composition of the harvest.

Iowa's duck harvests have fluctuated substantially since 1961. The lowest harvests of all ducks and mallards occurred in the early 1960's, years of low duck populations and restrictive hunting regulations. The highest duck harvest was in 1979, a year with good duck numbers and, perhaps more importantly, excellent habitat conditions in Iowa due to above normal rainfall in August and September. Duck harvests began to decline in 1985, bottoming out in 1988 and 1989. Reasons for reduced harvests included smaller breeding populations and fall flights, shorter seasons, reduced bag limits, fewer hunters, and poor local habitat conditions. Duck harvests have increased in recent years as a result of improvements in duck numbers, liberal hunting regulations, and increases in numbers of active hunters.

Iowa's Canada goose harvest was relatively constant during 1967-85, but began to increase in 1986 as a result of increasing numbers of local giant Canada geese (Table 4.2). Canada goose harvests increased substantially after 1988, but were dampened in 1993 when restrictive Canada goose hunting regulations were implemented to reduce the harvest of Eastern Prairie Population (EPP) Canada geese. EPP geese nest on the west coast of Hudson Bay and are one of the two principle migrant Canada goose populations that fly through Iowa (the other consists of small Canada geese, commonly called “cacklers” or “hutchies,” that nest on Baffin Island in the Arctic). The floods of 1993 may have also contributed to the decrease in the Canada goose harvest that year. Canada goose harvests resumed their increasing trend in the mid 1990’s, and recently peaked at 78,600 in 2005. The apparent drop in harvest in 1998 and 1999 may be an artifact of how the estimates were calculated rather than an actual change in harvest. At that time, the USFWS was converting from the old waterfowl stamp survey methodology to the new Harvest Information Program (HIP) survey. Harvest numbers from 1999 to the present are HIP estimates. Despite the Canada goose season being lengthened from 70 to 90 days in 2006 and to 98 days in 2010, Canada goose harvests have not increased in recent years. The smaller harvests in recent years likely reflect poor goose production in Iowa in those years.

The snow goose harvest in Iowa has declined since the early 1970's, despite record high numbers of snow geese in the Flyway in the 1990's and 2000’s. Declining harvests resulted from shifting snow goose migration patterns, later migrations, increased use of refuges, and large numbers of older geese in the population. By the mid 1990’s, the mid-continent light goose population was severely damaging Arctic breeding habitats. To increase harvests of light geese, more liberal hunting regulations were implemented (liberal bag limits, 107-day seasons) and a conservation order was implemented in 1999 to permit taking light geese after March 10 and to allow for hunting beyond the 107-day limit imposed by the Migratory Bird Treaty with Canada and Mexico. The harvest during the conservation order period in Iowa has ranged from 8,200 to 32,000 during 1999-2012. During the 1998-2011 regular light goose seasons, the harvest ranged from 0 to 15,000.

Waterfowl Seasons

Iowa waterfowl hunters have experienced a wide range of duck and goose seasons since the USFWS began regulating waterfowl hunting in 1918 (Tables 4.3 and 4.4). Nearly every conceivable season-date combination has been tried in the past 90 years. Duck hunting regulations are inherently complex because they involve many species. The general lack of consistency in regulations, however, has made interpretation of the effects of these regulations on duck harvests very difficult. Goose hunting regulations, on the other hand, have been less complex and more consistent. The relative secure goose breeding habitat, along with consistently conservative seasons and bag limits, have enabled goose populations to prosper. The growing giant Canada goose population, however, has complicated traditional Canada goose harvest management. It is particularly challenging to develop hunting regulations that will increase harvests of local giant Canada geese while limiting harvests of migrant geese from Arctic and sub-Arctic regions.

Waterfowl Banding

Ducks and geese are captured and banded with leg bands to obtain information on survival rates, hunting mortality, migration patterns and timing, and the relationships of harvest areas to production areas. Banding is conducted at the request of the USFWS and the Mississippi Flyway Council (MFC). Both state and federal personnel band ducks in Iowa, but IADNR personnel band all the Canada geese and more than 95% of the wood ducks (Table 4.5). Nearly 300,000 ducks and geese have been banded by IADNR personnel since 1964.

The USFWS, in concert with the MFC, determines banding priorities. In the 1960's emphasis was placed on banding blue-winged teal to evaluate special teal seasons. Winter mallard banding was conducted in the 1970's to supplement breeding grounds bandings and examine hen mortality during spring and summer. Wood duck bandings were used to evaluate Iowa's September duck seasons. Wood duck bandings are also important to measure the effects of hunting on wood duck populations, an aspect that has been particularly important since 2008 when the wood duck bag limit was increased from 2 to 3 birds per day. The IADNR has consistently cooperated with USFWS and MFC banding programs and has one of the top wood duck banding programs in the nation, accounting for 10% of all wood ducks banded in N. Am. in the last 10 years.

Canada goose banding has increased with the growth of the local Canada goose population in Iowa. Migrant Canada geese have also been banded as part of cooperative projects with the MFC. Canada goose banding will be increasingly important as the USFWS attempts to assess the impacts of special harvest regulations on resident Canada goose populations, which have been increasing, and migrant Canada goose populations, which have been stable or decreasing.

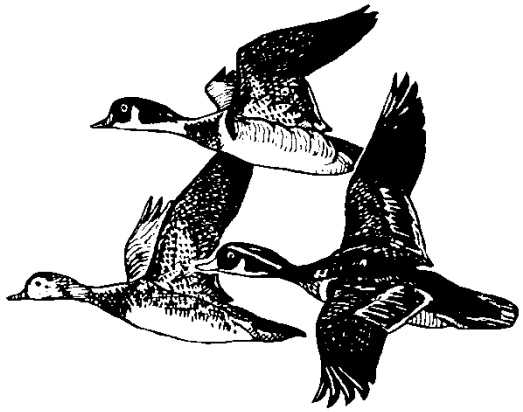
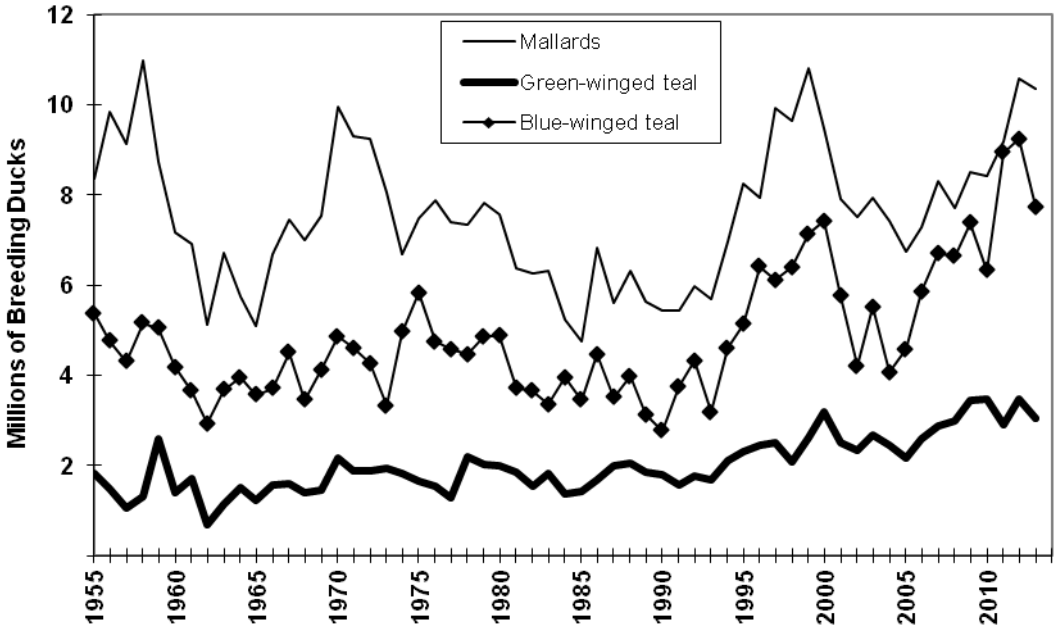
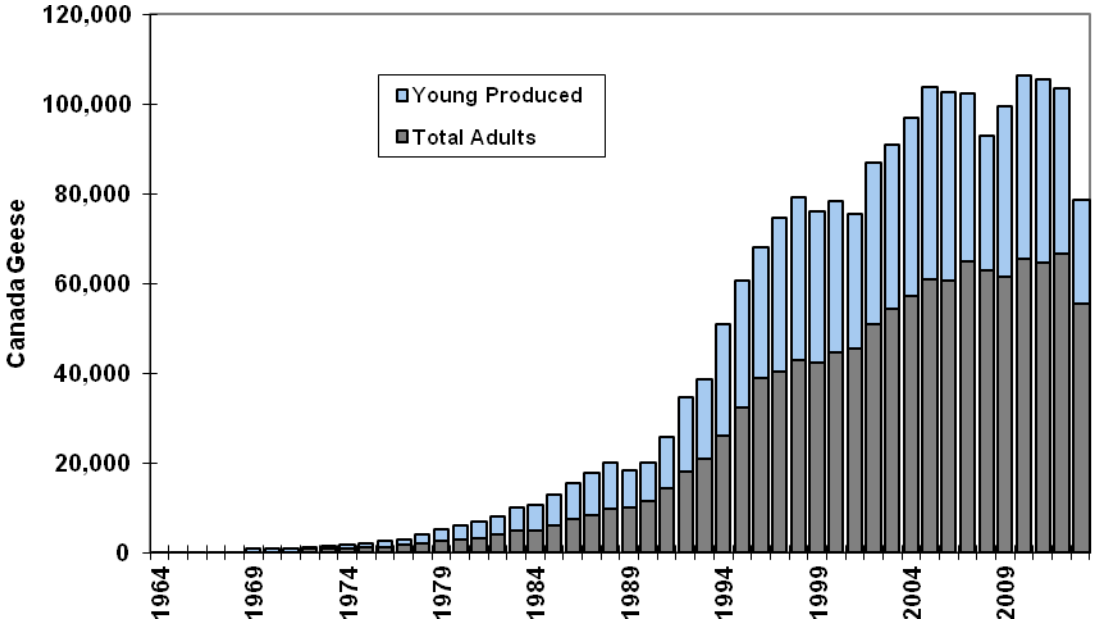


Figure 4.1 Breeding populations of important ducks to Iowa.



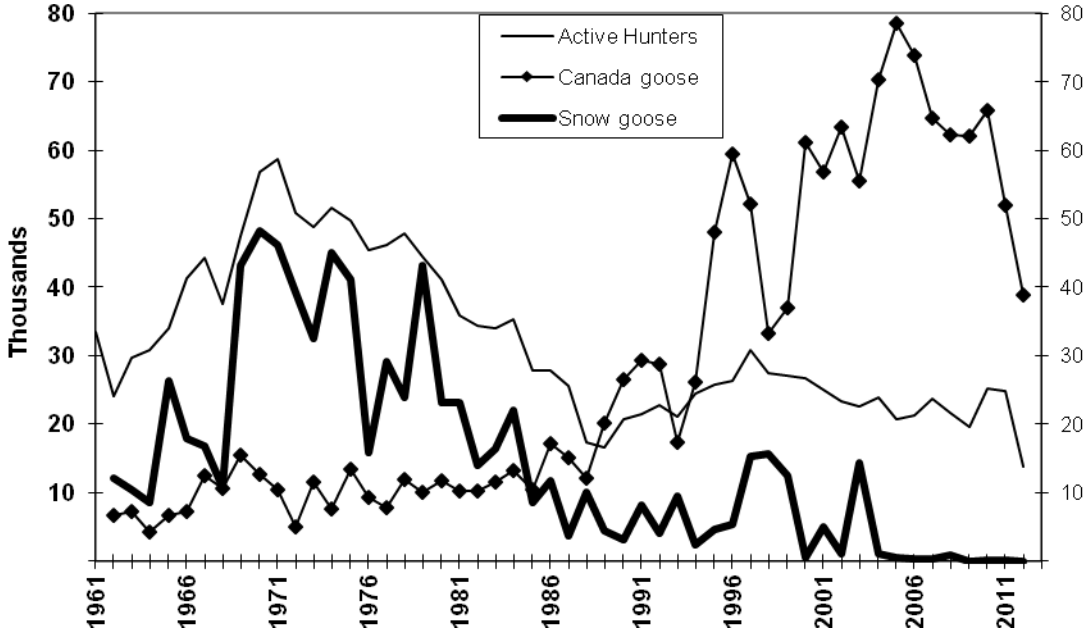
Source: USFWS

Figure 4.2 Iowa's giant Canada goose population.



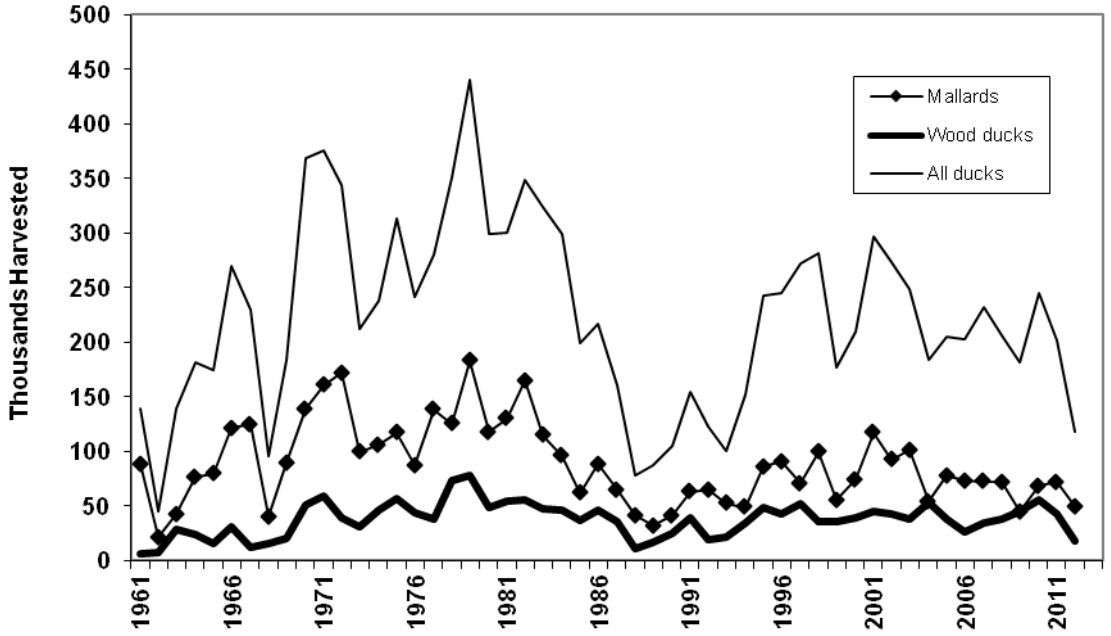
Source: Iowa DNR

Figure 4.3 Goose harvests and active hunters in Iowa (1961 -present).



Source: USFWS

Figure 4.4 Duck harvests in Iowa (1961 - present).



Source: USFWS

Table 4.1 Breeding population estimates for 10 species of ducks (in thousands) in the USFWS's traditional survey region in North America. (Source: USFWS)

YEAR	MALLARD	GAD-WALL	AMERICAN WIGEON	GREEN-WINGED TEAL	BLUE-WINGED TEAL	NORTHERN SHOVELER	NORTHERN PINTAIL	RED-HEAD	CANVAS-BACK	SCAUP
1955	8,356	663	3,067	1,823	5,381	1,571	9,387	572	599	5,609
1956	9,842	783	3,118	1,480	4,763	1,630	9,897	755	696	5,734
1957	9,151	691	2,852	1,053	4,312	1,459	6,311	542	615	5,745
1958	10,994	454	2,421	1,326	5,165	1,187	5,552	443	742	5,286
1959	8,746	527	3,703	2,601	5,046	1,456	5,483	493	481	6,961
1960	7,164	721	2,937	1,390	4,185	1,743	5,414	495	600	4,826
1961	6,912	594	2,817	1,709	3,655	1,256	3,676	319	428	5,335
1962	5,139	846	1,882	700	2,940	1,183	3,395	503	354	5,240
1963	6,723	1,092	1,706	1,155	3,681	1,278	3,622	413	499	5,396
1964	5,740	825	2,495	1,505	3,961	1,608	3,013	527	649	5,058
1965	5,101	1,270	2,312	1,237	3,570	1,372	3,549	599	520	4,652
1966	6,680	1,672	2,282	1,580	3,718	2,103	4,764	713	658	4,432
1967	7,470	1,385	2,320	1,588	4,509	2,291	5,270	734	500	4,932
1968	7,019	1,947	2,282	1,405	3,459	1,646	3,470	493	561	4,360
1969	7,536	1,573	2,919	1,468	4,133	2,145	5,900	633	501	5,131
1970	9,960	1,606	3,447	2,171	4,858	2,220	6,369	624	578	5,634
1971	9,306	1,603	3,281	1,881	4,607	2,005	5,874	534	444	5,063
1972	9,255	1,621	3,172	1,895	4,277	2,441	7,018	551	426	7,932
1973	8,060	1,247	2,864	1,936	3,334	1,624	4,351	498	617	6,222
1974	6,681	1,592	2,665	1,840	4,968	2,006	6,583	627	504	5,720
1975	7,494	1,641	2,692	1,667	5,829	1,962	5,878	829	591	6,427
1976	7,894	1,245	2,476	1,536	4,747	1,756	5,475	668	610	5,779
1977	7,396	1,312	2,560	1,291	4,589	1,475	3,935	637	667	6,247
1978	7,353	1,561	3,286	2,194	4,471	1,978	5,106	738	369	5,936
1979	7,816	1,751	3,087	2,019	4,861	2,386	5,382	695	573	7,540
1980	7,570	1,391	3,558	1,994	4,884	1,902	4,514	753	727	6,314
1981	6,367	1,402	2,924	1,851	3,726	2,325	3,472	596	610	5,918
1982	6,254	1,637	2,440	1,543	3,657	2,141	3,709	617	510	5,468
1983	6,313	1,517	2,606	1,836	3,366	1,870	3,506	709	523	7,136
1984	5,247	1,532	2,987	1,361	3,956	1,620	2,969	673	520	6,909
1985	4,754	1,304	2,040	1,435	3,459	1,697	2,511	579	373	5,038
1986	6,836	1,540	1,732	1,682	4,463	2,118	2,737	560	437	5,204
1987	5,613	1,311	1,982	2,003	3,518	1,951	2,629	502	451	4,837
1988	6,331	1,349	2,194	2,058	3,975	1,680	2,011	441	436	4,684
1989	5,650	1,416	1,974	1,843	3,128	1,540	2,113	511	478	4,344
1990	5,452	1,672	1,860	1,790	2,776	1,759	2,257	481	539	4,294
1991	5,444	1,584	2,254	1,558	3,764	1,716	1,803	446	491	5,255
1992	5,976	2,033	2,208	1,773	4,333	1,954	2,098	596	482	4,639
1993	5,708	1,755	2,053	1,695	3,193	2,047	2,053	485	472	4,080
1994	6,980	2,318	2,382	2,108	4,616	2,912	2,972	654	526	4,529
1995	8,269	2,836	2,615	2,301	5,140	2,855	2,758	889	771	4,446
1996	7,941	2,984	2,273	2,459	6,416	3,449	2,736	834	849	4,250
1997	9,940	3,897	3,118	2,507	6,124	4,120	3,558	918	689	4,112
1998	9,640	3,742	2,858	2,087	6,399	3,183	2,521	1,005	686	3,472
1999	10,806	3,236	2,920	2,631	7,150	3,890	3,058	973	716	4,412

Table 4.1 - continued: Breeding population estimates for 10 species of ducks (in thousands) in the USFWS traditional survey region in N. America. (Source: USFWS)

YEAR	MALLARD	GAD-WALL	AMERICAN WIGEON	GREEN-WINGED TEAL	BLUE-WINGED TEAL	NORTHERN SHOVELER	NORTHERN PINTAIL	RED-HEAD	CANVAS-BACK	SCAUP
2000	9,470	3,158	2,733	3,194	7,431	3,521	2,908	926	707	4,026
2001	7,904	2,679	2,494	2,509	5,757	3,314	3,296	712	580	3,694
2002	7,504	2,235	2,334	2,334	4,207	2,138	1,790	565	487	3,524
2003	7,950	2,549	2,551	2,679	5,518	3,620	2,558	637	558	3,734
2004	7,425	2,590	1,981	2,461	4,073	2,810	2,185	605	617	3,807
2005	6,755	2,179	2,225	2,157	4,586	3,592	2,561	592	521	3,387
2006	7,277	2,825	2,171	2,587	5,860	3,680	3,386	916	691	3,247
2007	8,307	3,356	2,807	2,890	6,708	4,553	3,335	1,009	865	3,452
2008	7,724	2,728	2,487	2,980	6,640	3,508	2,613	1,056	489	3,738
2009	8,512	3,054	2,469	3,444	7,384	4,376	3,225	1,044	662	4,172
2010	8,430	2,977	2,425	3,476	6,329	4,057	3,509	1,064	585	4,244
2011	9,183	3,257	2,084	2,900	8,949	4,641	4,429	1,356	692	4,319
2012	10,602	3,586	2,145	3,471	9,242	5,018	3,473	1,270	760	5,239
2013	10,372	3,351	2,644	3,053	7,732	4,751	3,335	1,202	787	4,166
Percent Change in 2013 from:										
2012	-2%	-7%	23%	-12%	-16%	-5%	-4%	-5%	4%	-20%
1955-12 Av.	40%	64%	5%	47%	59%	88%	-8%	71%	37%	-15%
1955-2011 Statistics										
Average	7,550	1,859	2,561	2,001	4,823	2,402	3,964	683	574	5,019
Maximum	10,994	3,897	3,703	3,476	9,242	5,018	9,897	1,356	865	7,932
Minimum	4,754	454	1,706	700	2,776	1,183	1,790	319	354	3,247
NAWMP-Goals	8,700	1,600	3,300	2,300	5,300	2,100	6,300	760	580	7,600
Percent Difference from Goal										
2013	19%	109%	-20%	33%	46%	126%	-47%	58%	36%	-45%

Table 4.2 Waterfowl harvest and hunter activity estimates for Iowa. Source is USFWS.
Data for 2001 to the present are based on the Harvest Information Program.

	DAYS AND HARVEST (1,000's)								FEDERAL	AVE.	ACTIVE
YEAR	MALLARD	WOOD DUCK	B-W TEAL	G-W TEAL	ALL DUCKS	CANADA GEESE	SNOW GEESE	DAYS HUNTED	DUCK STAMPS	SEASONAL DUCK BAG	ADULT HUNTERS
1961	88.5	6.8	0.5	16.3	139.4			230.4	41,147	3.9	33,500
1962	21.3	7.8	0.4	5.6	45.1	6.6	12.2	162.0	30,602	2.1	24,000
1963	43.0	29.0	27.9	14.9	139.2	7.2	10.4	228.2	37,166	4.7	29,700
1964	76.6	24.5	17.9	26.8	182.1	4.3	8.5	236.9	37,668	6.2	30,900
1965	79.8	15.4	43.8	22.3	174.6	6.6	26.3	271.6	39,941	6.0	34,000
1966	121.3	30.8	47.3	40.7	270.2	7.2	17.9	361.2	47,438	7.4	41,300
1967	124.9	12.4	43.3	38.4	229.4	12.4	16.8	394.6	52,269	6.6	44,300
1968	40.4	16.1	0.9	19.7	96.3	10.6	10.8	270.0	45,753	2.6	37,500
1969	89.9	21.1	53.3	22.3	183.7	15.5	43.2	397.3	54,807	5.1	47,500
1970	139.2	50.6	51.6	45.2	368.7	12.6	48.3	496.6	65,822	6.0	56,900
1971	160.9	59.3	49.6	26.6	376.2	10.4	46.1	536.5	68,401	6.3	58,700
1972	171.8	39.3	31.2	23.9	344.5	5.0	39.3	513.8	57,907	6.4	50,800
1973	99.9	31.0	18.5	18.1	211.9	11.6	32.5	401.1	57,196	3.9	48,700
1974	106.1	46.7	26.0	24.0	238.0	7.7	45.1	450.6	60,446	4.3	51,600
1975	117.4	57.5	51.0	38.6	313.6	13.5	41.2	446.1	58,791	5.9	49,700
1976	87.5	44.0	33.0	27.5	242.2	9.3	15.8	359.6	55,449	5.0	45,400
1977	138.7	37.9	17.0	38.7	280.0	7.8	29.1	407.3	57,143	5.3	46,200
1978	125.6	73.6	41.1	41.7	351.4	11.9	23.9	424.9	56,259	6.7	47,800
1979	183.3	77.8	69.2	38.0	441.0	10.0	43.2	496.7	49,845	9.5	44,400
1980	118.1	49.1	39.0	37.3	299.9	11.7	23.1	384.6	47,008	6.6	41,100
1981	130.2	54.3	34.6	27.7	301.1	10.2	23.1	371.5	41,648	7.9	35,900
1982	164.9	55.3	58.2	24.3	348.8	10.2	14.0	354.9	40,599	9.6	34,400
1983	115.2	47.3	74.0	27.8	324.2	11.5	16.5	310.4	40,381	8.5	34,000
1984	96.3	46.3	56.8	36.2	299.5	13.3	22.0	300.3	41,078	7.5	35,300
1985	62.0	37.4	41.5	22.6	199.8	10.4	8.5	241.4	33,304	6.8	27,900
1986	88.9	46.0	26.9	18.3	217.0	17.2	11.8	244.0	33,504	7.3	27,900
1987	64.8	36.1	14.2	20.1	161.1	15.1	3.6	207.0	30,248	6.0	25,500
1988	41.6	11.4	1.4	12.5	78.3	12.1	10.1	131.8	22,008	4.3	17,300
1989	32.2	17.0	2.9	17.9	87.8	20.2	4.4	127.5	21,686	4.7	16,600
1990	41.3	25.6	4.6	17.8	105.8	26.6	3.1	159.3	24,686	4.9	20,800
1991	63.1	39.4	6.6	13.3	154.2	29.3	8.1	196.7	24,989	6.8	21,400
1992	64.9	18.8	2.9	14.3	122.8	28.7	4.1	198.6	26,744	5.1	22,800
1993	52.7	22.2	4.1	7.9	100.9	17.3	9.5	176.5	25,640	4.7	21,092
1994	49.1	34.9	17.5	22.5	151.8	26.1	2.4	232.6	29,206	6.0	24,523
1995	86.1	49.2	38.9	23.7	242.3	48.0	4.6	280.2	30,282	8.2	25,792
1996	90.6	42.5	36.2	31.0	244.7	59.5	5.4	284.2	30,945	7.9	26,338
1997	71.2	52.1	54.5	32.7	272.0	52.2	15.2	338.3	36,062	8.3	30,737
1998	99.6	36.0	47.7	41.9	281.9	33.2	15.6	292.8	30,864	9.9	27,454
1999	55.9	35.8	41.9	17.4	176.7	33.0	12.5	271.9	32,419	7.2	27,024
2000	74.2	39.9	25.3	25.4	209.6	61.0	0.6	288.4	30,951	8.2	26,693
2001	117.2	45.5	49.3	29.7	296.4	58.1	5.2	203.5	32,090	11.9	25,000
2002	97.2	44.5	50.6	43.0	287.2	67.1	1.1	185.7	30,806	12.3	23,300
2003	101.7	38.6	30.1	29.4	248.9	55.5	14.4	187.1	30,206	11.0	22,500
2004	54.7	52.9	28.5	16.8	184.5	70.3	1.0	203.0	28,649	9.0	23,900
2005	77.9	38.1	39.0	21.2	205.2	78.6	0.6	128.9	26,943	11.8	20,800
2006	73.2	26.7	27.8	31.9	203.3	73.9	0.2	129.9	29,380	11.3	21,300
2007	72.7	34.2	40.3	39.5	232.8	64.6	0.3	151.4	26,531	11.4	23,700

Table 4.2 - continued: Waterfowl harvest and hunter activity estimates for Iowa. Source is USFWS.
Data for 2001 to the present are based on the Harvest Information Program.

	DAYS AND HARVEST (1,000's)								FEDERAL	AVE.	ACTIVE
YEAR	MALLARD	WOOD DUCK	B-W TEAL	G-W TEAL	ALL DUCKS	CANADA GEESE	SNOW GEESE	DAYS HUNTED	DUCK STAMPS	SEASONAL DUCK BAG	ADULT HUNTERS
2008	72.3	38.3	15.0	31.3	206.1	62.2	0.8	135.8	26,354	10.9	21,700
2009	45.3	45.1	35.5	22.5	181.5	62.0	0.0	130.3	Not avail.	10.3	19,500
2010	68.3	55.5	46.8	20.3	245.5	65.8	0.2	149.1	Not avail.	11.1	25,200
2011	72.0	43.3	23.4	19.7	201.8	52.0	0.1	136.2	Not avail.	10.8	24,900
2012	50.0	18.2	14.8	13.0	117.7	38.9	0.0	69.7	Not avail.	9.4	13,800
Percent Change in 2012 From:											
2011	-31%	-58%	-37%	-34%	-42%	-25%	-100%	-49%		-13%	-45%
1961-011 Av.	-44%	-55%	-54%	-50%	-49%	23%	-99%	-75%		23%	-57%
1961-12 Statistics											
Average	89.5	40.7	32.7	26.1	232.0	31.6	14.7	275.6	38854.4	7.7	31585.6
Maximum	183.3	77.8	74.0	45.2	441.0	78.6	48.3	536.5	68401.0	12.3	58700.0
Minimum	32.2	11.4	0.9	7.9	78.3	5.0	0.0	69.7	21686.0	2.6	13800.0
10-year avg											
1961-70	82.5	21.5	28.7	25.2	182.9	9.2	21.6	304.9	45261.3	5.0	37960.0
1971-80	133.0	51.8	38.8	32.2	316.8	10.0	36.5	453.3	58725.9	5.9	50020.0
1981-90	83.7	37.7	31.5	22.5	212.3	14.7	11.7	244.8	32914.2	6.8	27560.0
1991-00	67.5	35.7	25.5	22.2	185.3	35.4	8.0	243.1	29183.7	6.9	24796.0
2001-10	78.0	41.9	36.3	28.6	229.1	65.8	2.4	160.5	28869.8	11.1	22690.0

Table 4.3 Duck and coot seasons in Iowa.

YEAR	SEASON LENGTH	SEASON DATES	SHOOTING HOURS	LIMITS DUCK BAG/POSS	LIMITS COOT BAG/POSS	Additional Bag Limit Information
		STATEWIDE				
1917	227	Sep 1 - Apr 15	Unknown	?	?	
1918	107	Sep 16 - Dec 31	SR to SS	25 / none	25 /none	
1919	107	Sep 16 - Dec 31	SR to SS	25 / none	25 /none	
1920	107	Sep 16 - Dec 31	SR to SS	25 / none	25 /none	
1921	107	Sep 16 - Dec 31	SR to SS	25 / none	25 /none	
1922	107	Sep 16 - Dec 31	SR to SS	25 / none	25 /none	
1923	107	Sep 16 - Dec 31	SR to SS	25 / none	25 /none	
1924	107	Sep 16 - Dec 31	1/2 SR to SS	15 /50 WF	25 /none	WF = all waterfowl combined
1925	107	Sep 16 - Dec 31	1/2 SR to SS	15 /50 WF	25 /none	
1926	107	Sep 16 - Dec 31	1/2 SR to SS	15 /50 WF	25 /none	
1927	107	Sep 16 - Dec 31	1/2 SR to SS	15 /50 WF	25 /none	
1928	107	Sep 16 - Dec 31	1/2 SR to SS	15 /50 WF	25 /none	
1929	107	Sep 16 - Dec 31	1/2 SR to SS	15 /21 DC	25 /none	DC = all ducks combined
1930	107	Sep 16 - Dec 31	1/2 SR to SS	15 /21 DC	25 /none	
1931	30	Oct 20 - Nov 19	1/2 SR to SS	15 /21 DC	25 /none	
1932	61	Oct 1 - Nov 30	1/2 SR to SS	15 /21 *a	25 /none	*a) Closed season on Wd, Ru, & Bu.
1933	61	Oct 1 - Nov 30	1/2 SR to SS	12 /24 *a	25 /none	
1934	30	Oct 10 - Nov 18	SR to SS	12 /24 *a	25 /none	Live decoys limited to 25. Season included 10 rest days.
1935	30	Oct 21 - Nov 19	7 AM to 4 PM	10 /10 *a	15 /15	Use of live decoys prohibited.
1936	30	Nov 1 - Nov 30	7 AM to 4 PM	10 /10 *b	15 /15	*b) Closed sea. on Wd, Cb, Rh, Ru, & Bu.
1937	30	Oct 9 - Nov 7	7 AM to 4 PM	10 /10 *b	25 /25	
1938	45	Oct 15 - Nov 28	7 AM to 4 PM	10 /20 *c	25 /25	*c) Only 1 Bu, 1 Cb, 1 Ru, and 1 Rh, & no more than 3 in aggregate
1939	45	Oct 22 - Dec 5	7 AM to 4 PM	10 /20 *c	25 /25	
1940	60	Oct 16 - Dec 14	SR to 4 PM	10 /20 *c	25 /25	
1941	60	Oct 16 - Dec 14	SR to 4 PM	10 /20 *d	25 /25	*d) Only 3 Rh or 3 Bu or 3 in aggregate & only 1 Wd in poss at any time.
1942	70	Oct 15 - Dec 23	SR to SS	10 /20 *d	25 /25	
1943	70	Sep 25 - Dec 3	1/2 SR to SS	10 /20 *d	25 /25	
1944	80	Sep 20 - Dec 8	1/2 SR to SS	10 /20 *e	25 /25	*e) Only 5 each or in comb.: Ma, Pt, or Wg & only 1 Wd. 25 Am or Rm or comb.
1945	80	Sep 20 - Dec 8	1/2 SR to SS	10 /20 *f	25 /25	*f) Only 1 Wd in poss. at any time 25 Cm or Rm or comb.
1946	45	Oct 26 - Dec 9	1/2 SR to 1/2 SS	7 /14 *f	25 /25	
1947	30	Oct 21 - Nov 19	1/2 SR to 1 SS	4 / 8 *f	15 /15	
1948	30	Oct 29 - Nov 27	1/2 SR to 1 SS	4 / 8 *f	15 /15	
1949	40	Oct 21 - Nov 29	1/2 SR to 1 SS	4 / 8 *f	15 /15	
1950	35	Oct 20 - Nov 23	1/2 SR to 1 SS	4 / 8 *f	15 /15	
1951	45	Oct 12 - Nov 25	1/2 SR to 1 SS	4 / 8 *f	10 /10	
1952	55	Oct 8 - Dec 1	1/2 SR to 1 SS	4 / 8 *g	10 /10	*g) Only 1 Wd in poss. at any time. 1 Hm or 25 Cm or Rm or comb.
1953	55	Oct 8 - Dec 1	1/2 SR to SS	4 / 8 *g	10 /10	

Table 4.3 continued: Duck and coot seasons in Iowa.

YEAR	SEASON LENGTH	SEASON DATES	SHOOTING HOURS	LIMITS DUCK BAG/POSS	LIMITS COOT BAG/POSS	Additional Bag Limit Information
1954	55	Oct 15 - Dec. 8	1/2 SR to 1 SS	4 / 8 *h	10 /10	*h) Closed sea. on Wd. 1 Hm or 25 Cm or Rm or comb.
1955	70	Oct 8 - Dec 16	1/2 SR to 1/2 SS	4 / 8 *g	10 /10	
1956	70	Oct 6 - Dec 14	1/2 SR to 1/2 SS	4 / 8 *h	10 /10	
1957	70	Oct 5 - Dec 13	1/2 SR to SS	4 / 8 *i	10 /10	*i) Closed season on Wd. 5 mergansers, only 1 Hm.
1958	70	Oct 4 - Dec 12	1/2 SR to SS	4 / 8 *ii	10 /10	*ii) Only 2 Cb or 2 Rh or 2 in comb. No Wd season. 5 merg. only 1 Hm.
1959	50	Oct 20 - Dec 8	SR to SS	3 / 6 *j	3 / 6	*j) Only 1 Wd, 1 Cb, 1 Rh, or 1 Ru. 5 mergansers, only 1 Hm.
1960	50	Oct 15 - Dec 3	1/2 SR to SS	3 / 6 *k	8 /12	*k) Only 1 Wd. Closed sea. on Cb & Rh. 5 mergansers, only 1 Hm.
1961	30	Oct 21 - Nov 19	SR to SS	2 / 4 *k	6 / 6	
1962	25	Oct 27 - Nov 20	SR to SS	2 / 4 *l	6 / 6	*l) Only 1 Ma or Bd, 2 Wd. No Cb or Rh. 2 bonus Sc., 5 merg., only 1 Hm.
1963	35	Oct 5-13 Oct 26 - Nov 20	SR to SS	4 / 8 *m	8 / 8	*m) Only 2 Ma or Bd, 2 Wd. No Cb or Rh. 5 mergansers, only 1 Hm.
1964	35	Oct 3-4 Oct 24 - Nov 25	SR to SS	4 / 8 *n	10 /20	*n) Only 2 Ma or Bd, 2 Wd, 2 Cb or 2 Rh. 5 mergansers, only 1 Hm.
1965	40	Sep 11-19 (teal season) Oct 23 - Dec 1	SR to SS 1/2 SR to SS	4 / 8 *o	10 /20	*o) Only 1 Ma or Pt or Bd, 2 Wd, 2 Cb or Rh. 5 mergansers, only 1 Hm.
1966	45	Sep 17-25 (teal season) Oct 15 - Nov 28	SR to SS 1/2 SR to SS	4 / 8 *oo	10 /20	*oo) Only 2 Ma or Bd, 2 Wd, 2 Cb. 5 mergansers, only 1 Hm.
1967	40	Sep 16-24 (teal season) Oct 21 - Nov 29	SR to SS 1/2 SR to SS	4 / 8 *p	10 /20	*p) Only 2 Ma or Bd, 1 Wd, & 1 Cb. 5 mergansers, only 1 Hm.
1968	30	Oct 26 - Nov 24	1/2 SR to SS	3 / 6 *q	10 /20	*q) Only 1 Ma, 2 Bd, 2 Wd, 1 Cb or Rh. 5 mergansers, only 1 Hm.
1969	30	Sep 13-21 (teal season) Oct 25 - Nov 23	SR to SS 1/2 SR to SS	4 / 8 *r	10 /20	*r) Only 2 Ma, 2 Bd, 2 Wd, 1 Cb or Rh. 5 mergansers, only 1 Hm.
1970	55	Oct 3 - Nov 26	SR to SS	PS *s	15 /30	*s) 90 pt = Hn Ma, Bd, Wd, Rh, Cb, Hm. 20 pt= Dr Ma, Hn Pt, Rn. 10 pt= all other.
1971	50	Oct 2 - Nov 20	1/2 SR to SS	PS *t	15 /30	*t) 100 pt= Cb, Rh. 90 pt= Hn Ma, Bd, Wd, Hm. 20 pt= Dr Ma, Hn Pt, Rn. 10 pt= all other.
1972	50	Oct 7-12 Oct 21 - Dec 3	SR to SS	PS *u	15 /30	*u) 90 pt= Hn Ma, Bd, Wd, Hm. 20 pt= Dr Ma, Hn Pt, Rn. 10 pt= all other.
First year state duck stamp required						Closed season on Cb & Rh.
1973	45	Oct 6-10 Oct 20 - Nov 28	SR to SS	PS *v	15 /30	*v) 100 pt= Cb, Rh. 90 pt= Hn Ma, Wd, Hm. 25 pt= Dr Ma, Pt, Bd, Rn & all others. 15 pt= Bt, Gt, Ga, Wg, Sh, Sc, Cm, Rm.
1974	45	Oct 5-12 Oct 26 - Dec 1	SR to SS	PS *w	15 /30	*w) 100 pt= Cb, Rh. 90 pt= Hn Ma, Bd, Wd, Hm. 35 pt= Dr Ma, Rn, Md. 15 pt= all others.
1975	45	Oct 4-11 Oct 25 - Nov 30	1/2 SR to SS	PS *x	15 /30	*x) 100 pt= Cb, Rh. 90 pt= Hn Ma, Bd, Wd, Hm. 35 pt= Dr Ma, Rn, Wg, & all others. 10 pt= Bwt, Gwt, Ga, Pt, Sh, Sc.

Table 4.3 continued: Duck and coot seasons in Iowa.

YEAR	SEASON LENGTH	SEASON DATES		SHOOTING HOURS	LIMITS DUCK BAG/POSS	LIMITS COOT BAG/POSS	Additional Bag Limit Information
1976	50	Oct 2-7 Oct 23 - Dec 5		1/2 SR to SS	PS *y	15 /30	*y) 100 pt= Cb. 70 pt= Hn Ma, Bd, Wd, Rh, Hm. 25 pt= Dr Ma, Rn, Wg, & all others. 10 pt= Bt, Gt, Ct, Ga, Pt, Sh, Sc, Cm, Rm.
1977	45	Oct 8-15 Oct 22 - Nov 27		SR to SS	PS *y	15 /30	
1978	50	Oct 1-8 Oct 21-Dec 1		1/2 SR to SS	PS *z	15 /30	*z) 100 pt= Cb. 70 pt= Hn Ma, Bd, Wd, Rh, Hm. 35 pt= Dr Ma, Rn, & all others. 10 pt= Bt, Gt, Ct, Ga, Wg, Pt, Sh, Sc, Cm, Rm.
1979	50	Sep 22-26 Oct 20 - Dec 3		1/2 SR to SS	PS *aa	15 /30	*aa) 100 pt= Cb. 70 pt= Hn Ma, Bd, Wd, Rh, Hm. 25 pt= Dr Ma, Rn, & all others. 10 pt= Bt, Gt, Ct, Ga, Wg, Pt, Sh, Sc, Cm, Rm.
1980	50	Sep 20-24 Oct 18 - Dec 1		1/2 SR to SS	PS *aa	15 /30	
1981	50	Sep 19-23 Oct 17 - Nov 30		1/2 SR to SS	PS *aa	15 /30	
1982	50	Sep 18-22 Oct 23 - Dec 6		1/2 SR to SS	PS *aa	15 /30	
		NORTH ZONE (1)	**SOUTH ZONE (1)**				
1983	50	Sep 17-21 Oct 15 - Nov 28	Sep 17-21 Oct 22 - Dec 5	1/2 SR to SS	PS *ab	15 /30	*ab) 100 pt= Cb, Bd. 70 pt= Hn Ma, Wd, Rh, Hm. 25 pt= Dr Ma, Rn, & all others. 10 pt= Bt, Gt, Ct, Ga, Wg, Pt, Sh, Sc, Cm, Rm.
1984	50	Sep 22-26 Oct 20 - Dec 3	Sep 22-26 Oct 27 - Dec 10	1/2 SR to SS	PS *ab	15 /30	
1985	40	Sep 21-23 Oct 19 - Nov 24	Sep 21-23 Oct 26 - Dec 1	1/2 SR to SS	PS *ac	15 /30	*ac) 100 pt= Hn Ma, Cb, Bd. 70 pt= Wd, Rh, Hm. 35 pt= Dr Ma, Pt, Rn, & all others. 20 pt= Bt, Gt, Ct, Ga, Wg, Sh, Sc, Cm, Rm.
1986	40	Sep 20-24 Oct 18 - Nov 21	Sep 20-22 Oct 25 - Nov 30	1/2 SR to SS	PS *ad	15 /30	*ad) 100 pt= Hn Ma, Bd. 70 pt= Wd, Rh, Hm. 35 pt= Dr Ma, Pt, Rn, & all others. 20 pt= Bt, Gt, Ct, Ga, Wg, Sh, Sc, Cm, Rm. Closed season on Cb.
		NORTH ZONE (2)	**SOUTH ZONE (2)**				
1987	40	Sep 19-23	Sep 19-21	1/2 SR to SS	PS *ad	15 /30	
(*SH)		Oct 17 - Nov 20	Oct 24 - Nov 29				
1988	30	Oct 8 - 9 Oct 22 - Nov 18	Oct 22 - 28 Nov 5 - 27	SR to SS	3 / 6 *ae	15 /30	*ae) Only 2 Ma (1 Hn), 2 Wd, 1 Pt, 1 Rh,1 Bd. 5 merg., only 1 Hm. Closed sea. on Cb.
1989	30	Oct 7 - 8 Oct 21 - Nov 17	Oct 21 - 27 Nov 4 - 26	SR to SS	3 / 6 *ae	15 /30	
1990	30	Oct 6 - 7 Oct 20 - Nov 16	Oct 20 - 26 Nov 3 - 25	1/2 SR to SS	3 / 6 *ae	15 /30	
1991	30	Oct 5 - 6 Oct 19 - Nov 15	Oct 19 - 25 Nov 9 - Dec 1	1/2 SR to SS	3 / 6 *ae	15 /30	
1992	30	Oct 10 - 13 Oct 24 - Nov 18	Oct 24 - 30 Nov 7 - 29	1/2 SR to SS	3 / 6 *ae	15 /30	

Table 4.3 continued: Duck and coot seasons in Iowa.

YEAR	SEASON LENGTH	SEASON DATES		SHOOTING HOURS	LIMITS DUCK BAG/POSS	LIMITS COOT BAG/POSS	Additional Bag Limit Information
		NORTH ZONE (2)	SOUTH ZONE (2)				
1993	30	Oct 2 - 4	Oct 23 - 29	1/2 SR to SS	3 / 6 *ae	15 /30	
		Oct 23 - Nov 18	Nov 6 - 28				
1994	40	Sept 17 - 19	Oct 1 - 3	1/2 SR to SS	3 / 6 *af	15 /30	*af) Only 2 Ma (1 Hn), 2 Wd, 1 Pt, 1 Rh,1 Bd, 1 Cb.
		Oct 15 - Nov 20	Oct 22 - Nov 27				5 merg., only 1 Hm.
1995	50	Sept 23 - 27	Sept 23 - 25	1/2 SR to SS	5 /10 *ag	15 /30	*ag) Only 4 Ma (1 Hn), 2 Wd, 1 Pt, 1 Rh,1 Bd, 1 Cb.
		Oct 15 - Nov 28	Oct 21 - Dec 6				5 merg., only 1 Hm.
1996	50	Sept 21 - 25	Sept 21 - 23	1/2 SR to SS	5 /10 *ah	15 /30	*ah) Only 4 Ma (1 Hn), 2 Wd, 1 Pt, 2 Rh,1 Bd, 1 Cb.
		Oct 19 - Dec 2	Oct 19 - Dec 4				5 merg., only 1 Hm.
	Youth Day	Oct 5	Oct 5	1/2 SR to SS	5 /10 *ah		
1997	60	Sept 20 - 24	Sept 20 - 24	1/2 SR to SS	6 /12 *ai	15 /30	*ai) Only 4 Ma (2 Hn), 2 Wd, 3 Pt, 2 Rh,1 Bd, 1 Cb.
		Oct 11 - Dec 4	Oct 18 - Dec 11				5 merg., only 1 Hm.
	Youth Day	Sept 27	Sept 27	1/2 SR to SS	6 /12 *ai	15 /30	
1998	60	Sept 19 - 23	Sept 19 - 23	1/2 SR to SS	6 /12 *aj	15 /30	*aj) Only 4 Ma (2 Hn), 2 Wd, 1 Pt, 2 Rh,1 Bd, 1 Cb.
(*HIP)		Oct 10 - Dec 3	Oct 17 - Dec 10				5 merg., only 1 Hm.
	Youth Day	Sept 26	Sept 26	1/2 SR to SS	6 /12 *aj	15 /30	
1999	60	Sept 18 - 22	Sept 18 - 22	1/2 SR to SS	6 /12 *ak	15 /30	*ak) Only 4 Ma (2 Hn), 2 Wd, 1 Pt, 2 Rh,1 Bd, 1 Cb
		Oct 16 - Dec 9	Oct 16 - Dec 9				& 3 Sc. 5 merg., only 1 Hm.
	Youth Day	Oct 9	Oct 9	1/2 SR to SS	6 /12 *ak	15 /30	
2000	60	Sept 23 - 27	Sept 23 - 27	1/2 SR to SS	6 /12 *ak	15 /30	
		Oct 14 - Dec 7	Oct 14 - Dec 7				
	Youth Day	Oct 7 - 8	Oct 7 - 8	1/2 SR to SS	6 /12 *ak	15 /30	
2001	60	Sept 22 - 26	Sept 22 - 26	1/2 SR to SS	6 /12 *ak	15 /30	
		Oct 13 - Dec 6	Oct 13 - Dec 6				
	Canvasback	Oct. 27 - Nov 15	Nov 17 - Dec 6				
	Youth Day	Oct 6 - 7	Oct 6 - 7	1/2 SR to SS	6 /12 *ak	15 /30	
2002	60	Sept 21 - 25	Sept 21 - 23	1/2 SR to SS	6 /12 *al	15 /30	*al) Only 4 Ma (2 Hn), 2 Wd, 1 Pt, 2 Rh,1 Bd,
		Oct 12 - Dec 5	Oct 19 - Dec 14				& 3 Sc. 5 merg., only 1 Hm. Closed sea. on Cb
	Pintail	Sept 21 - 25	Sept 21 - 23				
		Oct 12 - Nov 5	Oct 19 - Nov 14				
	Youth Day	Oct 5 - 6	Oct 5 - 6	1/2 SR to SS	6 /12 *al	15 /30	
2003	60	Sept 20 - 24	Sept 20 - 22	1/2 SR to SS	6 /12 *ak	15 /30	*ak) Only 4 Ma (2 Hn), 2 Wd, 1 Pt, 2 Rh,1 Bd, 1 Cb
		Oct 11 - Dec 4	Oct 18 - Dec 13				& 3 Sc. 5 merg., only 1 Hm.
	Pintail	Sept 20 - 24	Sept 20 - 22				
		Oct 11 - Nov 4	Oct 18 - Nov 13				
	Canvasback	Oct 18 - Nov 16	Oct 25 - Nov 23				
	Youth Day	Oct 4 - 5	Oct 4 - 5	1/2 SR to SS	6 /12 *ak	15 /30	
2004	60	Sept 18 - 22	Sept 25 - 26	1/2 SR to SS	6 /12 *ak	15 /30	
		Oct 16 - Dec 9	Oct 16 - Dec 12				
	Pintail	Sept 18 - 22	Sept 25 - 26				
		Oct 16 - Nov 9	Oct 16 - Nov 12				
	Canvasback	Oct 23 - Nov 21	Oct 23 - Nov 21				
	Youth Day	Oct 2 - 3	Oct 9 - 10	1/2 SR to SS	6 /12 *ak	15 /30	

Table 4.3 continued: Duck and coot seasons in Iowa.

YEAR	SEASON LENGTH	SEASON DATES			SHOOTING HOURS	LIMITS DUCK BAG/POSS	LIMITS COOT BAG/POSS	Additional Bag Limit Information
		NORTH ZONE (2)		**SOUTH ZONE (2)**				
2005	60	Sept 17 - 21		Sept 24 - 28	1/2 SR to SS	6 /12 *am	15 /30	*am) Only 4 Ma (2 Hn), 2 Wd, 1 Pt, 2 Rh,1 Bd, 1 Cb & 2 Sc. 5 merg., only 1 Hm.
		Oct 15 - Dec 8		Oct 22 - Dec 15				
	Canvasback	Oct 22 - Nov 20		Oct 29 - Nov 27				
	Youth Day	Oct 8 - 9		Oct 8 - 9	1/2 SR to SS	6 /12 *am	15 /30	
		NORTH ZONE (3)		**SOUTH ZONE (3)**				
2006	60	Sept 23 - 27		Sept 23 - 27	1/2 SR to SS	6 /12 *an	15 /30	*an) Only 4 Ma (2 Hn), 2 Wd, 1 Pt, 2 Rh,1 Bd, 1 Cb & 2 Sc. 5 merg., only 2 Hm.
		Oct 14 - Dec 7		Oct 21 - Dec 14				
	Youth Day	Oct 7 - 8		Oct 7 - 8	1/2 SR to SS	6 /12 *an	15 /30	
2007	60	Sept 22 - 26		Sept 22 - 26	1/2 SR to SS	6 /12 *ao	15 /30	*ao) Only 4 Ma (2 Hn), 2 Wd, 1 Pt, 2 Rh,1 Bd, 2 Cb & 2 Sc. 5 merg., only 2 Hm.
		Oct 13 - Dec 6		Oct 20 - Dec 13				
	Youth Day	Oct 6 - 7		Oct 6 - 7	1/2 SR to SS	6 /12 *ao	15 /30	
2008	60	Sept 20 - 24		Sept 20 - 24	1/2 SR to SS	6 /12 *ap	15 /30	*ap) Only 4 Ma (2 Hn), 3 Wd, 1 Pt, 2 Rh,1 Bd, & 1 Sc (Nov 1-20 limit 2 Sc). 5 merg., only 2 Hm. Closed season on Cb.
		Oct 18 - Dec 11		Oct 18 - Dec 11				
	Youth Day	Oct 4 - 5		Oct 4 - 5	1/2 SR to SS	6 /12 *ap	15 /30	
2009	60	Sept 19 - 23		Sept 19 - 23	1/2 SR to SS	6 /12 *aq	15 /30	*aq) Only 4 Ma (2 Hn), 3 Wd, 1 Pt, 2 Rh,1 Bd, 1 Cb, & 2 Sc. 5 merg., only 2 Hm.
		Oct 10 - Dec 3		Oct 17 - Dec 10				
	Youth Day	Oct 3 - 4		Oct 3 - 4	1/2 SR to SS	6 /12 *aq	15 /30	
2010	60	Sept 18 - 22		Sept 18 - 22	1/2 SR to SS	6 /12 *ar	15 /30	*ar) Only 4 Ma (2 Hn), 3 Wd, 2 Pt, 2 Rh,1 Bd, 1 Cb, & 2 Sc. 5 merg., only 2 Hm.
		Oct 16 - Dec 9		Oct 23 - Dec 16				
	Youth Day	Oct 2 - 3		Oct 9 -10	1/2 SR to SS	6 /12 *ar	15 /30	
		NORTH ZONE (4)		**SOUTH ZONE (4)**				
2011	60	Sept 17 - 21		Sept 17 - 21	1/2 SR to SS	6 /12 *ar	15 /30	
		Oct 15 - Dec 8		Oct 22 - Dec 15				
	Youth Day	Oct 1 - 2		Oct 8 - 9	1/2 SR to SS	6 /12 *ar	15 /30	
		NORTH ZONE (5)	**SOUTH ZONE (5)**	**MISSOURI RIVER (5)**				
2012	60	Sept 22 - 26	Sept 22 - 26	Sept 22 - 26	1/2 SR to SS	6 /12 *as	15 /30	*as) Only 4 Ma (2 Hn), 3 Wd, 2 Pt, 2 Rh,1 Bd, 1 Cb, & 4 Sc. 5 merg., only 2 Hm.
		Oct 13 - Dec 6	Oct 20 - Dec 13	Oct 27 - Dec 20				
	Youth Day	Oct 6 - 7	Oct 13 - 14	Oct 20 - 21	1/2 SR to SS	6 /12 *as	15 /30	

Table 4.3 continued: Duck and coot seasons in Iowa.

DUCK SPECIES: Ma = Mallard, Wd = Wood duck, Bd = Black duck, Cb = Canvasback, Rh = Redhead, Ru = Ruddy duck, Bu = Bufflehead, Pt = Pintail, Wg = Wigeon, Sc = Scaup, Rn = Ring-necked duck Bt = Blue-winged teal, Gt = Green-winged teal, Ga = Gadwall, Sh = Shoveler, Ct = Cinnamon teal, Md = Mottled duck, (Hn = Hen, Dr = Drake) Cm = Common merganser, Rm = Red-breasted merganser, Hm = Hooded merganser

SHOOTING HOURS: SR to SS = sunrise to sunset, 1/2 SR to SS = 1/2 hour before sunrise to sunset, 1/2 SR to 1/2 SS = 1/2 hour before sunrise to 1/2 hour before sunset, 1/2 SR to 1 SS = 1/2 hour before sunrise to 1 hour before sunset.
Shooting hours began at 12:00 noon on opening day for hunting seasons 1931-33, 1947-54, & 1959-63.
Iowa set daily shooting hours at sunrise or later during 27 of the 72 hunting seasons between 1918-89.
Federal regulations set daily shooting hours at sunrise or later during 16 of the 90 hunting seasons between 1918-2007.

LIMIT: BAG = Daily bag limit, **POSS** = Possession limit

POSS LIMIT = Twice the daily bag limit unless otherwise noted.

PS = Point System was used to determine the daily bag limit. The daily bag limit was obtained when the point value of the last duck taken, added to the point values of the previous ducks bagged, equaled or exceeded 100 points.

SPEC. REGULATIONS: Wood duck season was closed by Federal regulation from the 1918 through the 1940 season.
Canvasback and redhead seasons were closed on the Mississippi River from 1975 thru 1979.
Canvasback season was closed on the Mississippi River in 1980-82.
Canvasback season closed on Pools 9 & 19 on the Mississippi River from 1983-85.
Canvasback season closed statewide 1936-37, 1960-63, 1972, 1986-93, 2002, 2008.

DUCK ZONE BOUNDARY (1) = a line running from the Nebraska-Iowa border along I-80 to the Iowa-Illinois border.

DUCK ZONE BOUNDARY (2) = a line running from the Nebraska-Iowa border along State Hwy 175, east to State Hwy 37, southeast to U.S. Hwy 59, south to I-80 and along I-80 to the Iowa-Illinois border.

DUCK ZONE BOUNDARY (3) = a line running from the Nebraska-Iowa border along State Hwy 175, east to State Hwy 37, southeast to State Hwy 183, northeast to State Hwy 141, east to U.S. Hwy 30, and along U.S. Hwy 30 to the Iowa-Illinois border.

DUCK ZONE BOUNDARY (4) = a line beginning on the South Dakota-Iowa border at Interstate 29, southeast to Woodbury Co. Rd. D38, east to Woodbury Co. Rd. K45, southeast to State Highwy 175, east to State Highway 37, southeast to State Highway 183, northeast to State Hwy 141, east to U.S. Hwy 30, and along U.S. Hwy 30 to the Iowa-Illinois border.

DUCK ZONE BOUNDARY (5) = The North Zone is all of Iowa north of a line beginning on the on the South Dakota-Iowa border at Interstate 29, southeast to State Highway 175, east to State Highway 37, southeast to State Highway 183, northeast to State Highway 141, east to U.S. Highway 30, and along U.S. 30 tp the Iowa-Illinois border. The Missouri River Zone includes all lands and water in Iowa west of Interstate 29 and north of Highway 175. The South Zone is the remainder of the state not in the North or Missouri River Zones.

(*SH) Steel shot required statewide for hunting all migratory gamebirds except woodcock.

STEEL SHOT REGULATIONS HISTORY:

In 1977, no person could hunt waterfowl on all waters and a 150 yard zone thereto in Fremont and Mills Counties while possessing 12 gauge shotshells loaded with any shot other than steel. Drainage ditches, temporary sheet water and the Missouri River were exempt.

During 1978 & 1979, no person could hunt waterfowl on all waters and a 150 yard zone thereto in Fremont and Mills Counties and on the Upper Mississippi Wildlife Refuge while possessing 12 gauge shotshells loaded with any shot other than steel. Drainage ditches, temporary sheet water, and the Missouri River in Mills and Fremont Counties were exempt.

In 1980, Sweet Marsh in Bremer County, Big Marsh in Butler County, and the Princeton Area in Scott County, were added to the areas previously described in the steel shot regulations and the rule now applied to all shotgun gauges.

In 1981, Green Island in Jackson County was added to the list of areas previously described where steel shot was required.

During the 1982 through 1984 seasons, the previously described list of areas for steel shot remained the same.

During the 1985 & 1986 seasons, no person could hunt migratory game birds except woodcock on any lands or waters under the jurisdiction of the State Conservation Commission, the U.S. Government, or any county conservation board, or on all waters and a 150 yard zone adjacent to these waters, including reservoirs, lakes, ponds, marshes, bayous, swamps, rivers, streams, and seasonally flooded areas of all types, while possessing shotshells loaded with shot other than steel shot. Temporary sheet water, farm ponds less than 2 acres in size, and streams with water less than 25 feet in width where the hunting was occuring were exempt. In addition, no person could hunt waterfowl in the zone bounded on the west by the Missouri River, on the south by I-680, on the east by I-29 and on the north by the Soldier River, while possessing any shotshells loaded with shot other than steel shot.

From 1987 to the present, no person could hunt migratory game birds except woodcock on all lands and waters within the State of Iowa while possessing any shotshell loaded with shot other than steel shot, or copper or nickle coated steel shot.

In 1998, nontoxic shot was required for any shotgun shooting (except turkey hunting) on most DNR managed wildlife areas in Iowa's prairie pothole region that had waterfowl production potential.

(*HIP) First year migratory bird hunters in Iowa registered (by phone) for the federal Harvest Information Program (HIP).

Table 4.4 Goose seasons in Iowa.

YEAR	GOOSE SPECIES	SEASON LENGTH	SEASON DATES	SHOOTING HOURS	LIMIT BAG/POSS	Additional Bag Limit Information
			STATEWIDE			
1917	Ca/Sn/Wf	227	Sep 1 - Apr 15	Unknown	?	
1918	Ca/Sn/Wf	107	Sep 16 - Dec 31	SR to SS	8 / none	
1919	Ca/Sn/Wf	107	Sep 16 - Dec 31	SR to SS	8 / none	
1920	Ca/Sn/Wf	107	Sep 16 - Dec 31	SR to SS	8 / none	
1921	Ca/Sn/Wf	107	Sep 16 - Dec 31	SR to SS	8 / none	
1922	Ca/Sn/Wf	107	Sep 16 - Dec 31	SR to SS	8 / none	
1923	Ca/Sn/Wf	107	Sep 16 - Dec 31	SR to SS	8 / none	
1924	Ca/Sn/Wf	107	Sep 16 - Dec 31	1/2 SR to SS	8 / 50 WF	WF = all waterfowl combined
1925	Ca/Sn/Wf	107	Sep 16 - Dec 31	1/2 SR to SS	8 / 50 WF	
1926	Ca/Sn/Wf	107	Sep 16 - Dec 31	1/2 SR to SS	8 / 50 WF	
1927	Ca/Sn/Wf	107	Sep 16 - Dec 31	1/2 SR to SS	8 / 50 WF	
1928	Ca/Sn/Wf	107	Sep 16 - Dec 31	1/2 SR to SS	8 / 50 WF	
1929	Ca/Sn/Wf	107	Sep 16 - Dec 31	1/2 SR to SS	8 / 50 WF	
1930	Ca/Sn/Wf	107	Sep 16 - Dec 31	1/2 SR to SS	4 / 8	
1931	Ca/Sn/Wf	30	Oct 20 - Nov 19	1/2 SR to SS	4 / 8	
1932	Ca/Sn/Wf	61	Oct 1 - Nov 30	1/2 SR to SS	4 / 8	
1933	Ca/Sn/Wf	61	Oct 1 - Nov 30	1/2 SR to SS	4 / 8	
1934	Ca/Sn/Wf	30	Oct 10 - Nov 18	SR to SS	4 / 8	(included 10 rest days)
1935	Ca/Sn/Wf	30	Oct 21 - Nov 19	7 AM to 4 PM	4 / 4	
1936	Ca/Sn/Wf	30	Nov 1 - Nov 30	7 AM to 4 PM	4 / 4	
1937	Ca/Sn/Wf	30	Oct 9 - Nov 7	7 AM to 4 PM	5 / 5	
1938	Ca/Sn/Wf	45	Oct 15 - Nov 28	7 AM to 4 PM	5 /10	
1939	Ca/Sn/Wf	45	Oct 22 - Dec 5	7 AM to 4 PM	4 / 8	
1940	Ca/Sn/Wf	60	Oct 16 - Dec 14	SR to 4 PM	3 / 6	
1941	Ca/Sn/Wf	60	Oct 16 - Dec 14	SR to 4 PM	3 / 6	
1942	Ca/Sn/Wf	70	Oct 15 - Dec 23	SR to SS	2 / 4	
1943	Ca/Sn/Wf	70	Sep 25 - Dec 3	1/2 SR to SS	2 / 4	
1944	Ca/Sn/Wf	80	Sep 20 - Dec 8	1/2 SR to SS	2 / 4 *a	*a) Sn goose poss. limit = 8.
1945	Ca/Sn/Wf	80	Sep 20 - Dec 8	1/2 SR to SS	2 / 4 *a	
1946	Ca/Sn/Wf	45	Oct 26 - Dec 9	1/2 SR to 1/2 SS	4 / 4 *b	*b) Closed Ca goose season.
1947	Ca/Sn/Wf	30	Oct 21 - Nov 19	1/2 SR to 1 SS	4 / 4 *c	*c) Only 1 Ca or 1 Wf goose in bag.
1948	Ca/Sn/Wf	30	Oct 29 - Nov 27	1/2 SR to 1 SS	4 / 4 *c	
1949	Ca/Sn/Wf	40	Oct 21 - Nov 29	1/2 SR to 1 SS	4 / 4 *c	
1950	Ca/Sn/Wf	35	Oct 20 - Nov 23	1/2 SR to 1 SS	4 / 4 *c	
1951	Ca/Sn/Wf	45	Oct 12 - Nov 25	1/2 SR to 1 SS	5 / 5 *d	*d) Only 2 Ca or 2 Wf, or 1 Ca & 1 Wf.
1952	Ca/Sn/Wf	55	Oct 8 - Dec 1	1/2 SR to 1 SS	5 / 5 *d	
1953	Ca/Sn/Wf	55	Oct 8 - Dec 1	1/2 SR to SS	5 / 5 *d	
1954	Ca/Sn/Wf	55	Oct 15 - Dec 8	1/2 SR to 1 SS	5 / 5 *d	
1955	Ca/Sn/Wf	70	Oct 8 - Dec 16	1/2 SR to 1/2 SS	5 / 5 *d	
1956	Ca/Sn/Wf	70	Oct 6 - Dec 14	1/2 SR to 1/2 SS	5 / 5 *d	
1957	Ca/Sn/Wf	70	Oct 5 - Dec 13	1/2 SR to SS	5 / 5 *d	
1958	Ca/Sn/Wf	70	Oct 4 - Dec 12	1/2 SR to SS	5 / 5 *d	
1959	Ca/Sn/Wf	70	Oct 7 - Dec 15	SR to SS	5 / 5 *d	
1960	Ca/Sn/Wf	70	Oct 8 - Dec 16	1/2 SR to SS	5 / 5 *d	
1961	Ca/Sn/Wf	70	Oct 7 - Dec 15	SR to SS	5 / 5 *d	
1962	Ca/Sn/Wf	70	Oct 6 - Dec 14	SR to SS	5 / 5 *d	

Table 4.4 continued: Goose seasons in Iowa.

YEAR	GOOSE SPECIES	SEASON LENGTH	SEASON DATES		SHOOTING HOURS	LIMIT BAG/POSS	Additional Bag Limit Information
			STATEWIDE				
1963	Ca/Sn/Wf	70	Oct 5 - Dec 13		SR to SS	5 / 5 *d	
1964	Ca/Sn/Wf	70	Oct 3 - Dec 11		SR to SS	5 / 5 *d	
1965	Ca/Sn/Wf	70	Oct 2 - Dec 10		1/2 SR to SS	5 / 5 *d	
1966	Ca/Sn/Wf	70	Oct 1 - Dec 9		1/2 SR to SS	5 / 5 *d	
1967	Ca/Sn/Wf	70	Sep 30 - Dec 8		1/2 SR to SS	5 / 5 *d	
1968	Ca/Sn/Wf	70	Sep 28 - Dec 6		1/2 SR to SS	5 / 5 *d	
1969	Ca/Sn/Wf	70	Oct 4 - Dec 12		1/2 SR to SS	5 / 5 *d	
1970	Ca	23	Oct 3 - Nov 26		SR to SS	1 / 1 *e	*e) Bag & pos. lim.= 5 w/ only 1 Ca,
	Sn/Wf	70	Oct 3 - Dec 11			5 / 5 *e	1 Ca + 1 WF, or 2 Wf.
1971	Ca	23	Oct 9 - Oct 31		1/2 SR to SS	1 / 1 *e	
	Sn/Wf	70	Oct 2 - Dec 10			5 / 5 *e	
1972	Ca	23	Oct 1 - Nov 9		SR to SS	1 / 2 *f	*f) Bag lim.= 5 w/ only 1 Ca,
	Sn/Wf	70	Oct 7 - Dec 15			5 / 5 *f	1 Ca + 1 WF, or 2 Wf.
							Pos. lim.= 5 w/ only 2 Ca,
First year state duck stamp required							1 Ca + 1 WF, or 2 Wf.
1973	Ca	40	Oct 1 - Nov 9		SR to SS	1 / 2 *g	*g) Bag lim.= 5 w/ only 1 Ca & 2 Wf.
	Sn/Wf	70	Oct 1 - Dec 9			5 / 5 *g	Pos lim.= 5 w/ only 2 Ca & 2 Wf.
1974	Ca	45	Oct 1 - Nov 14		SR to SS	1 / 2 *g	
	Sn/Wf	70	Oct 1 - Dec 9			5 / 5 *g	
1975	Ca	45	Oct 1 - Nov 14		1/2 SR to SS	2 / 2 *h	*h) Bag lim.= 5 w/ only 2 Ca & 2 Wf.
	Sn/Wf	70	Oct 1 - Dec 9			5 / 5 *h	Pos lim.= Bag lim.
1976	Ca	45	Oct 1 - Nov 14		1/2 SR to SS	2 / 4 *h	
	Sn/Wf	70	Oct 1 - Dec 9			5 /10 *h	
1977	Ca	45	Oct 1 - Nov 14		SR to SS	2 / 4 *h	
	Sn/Wf	70	Oct 1 - Dec 9			5 /10 *h	
1978	Ca/Sn/Wf	70	Oct 1 - Dec 9		1/2 SR to SS	5 /10 *h	
1979	Ca/Sn/Wf	70	Sep 29 - Dec 7		1/2 SR to SS	5 /10 *h	
1980	Ca/Sn/Wf	70	Oct 4 - Dec 12		1/2 SR to SS	5 /10 *i	*i) Bag lim.= 5 w/ only 2 Ca & 2 Wf.
							Pos lim.= 10 w/ only 4 Ca & 4 Wf.
1981	Ca/Sn/Wf	70	Oct 3 - Dec 11		1/2 SR to SS	5 /10 *i	
1982	Ca/Sn/Wf	70	Oct 2 - Dec 10		1/2 SR to SS	5 /10 *i	
1983	Ca/Sn/Wf	70	Oct 1 - Dec 9		1/2 SR to SS	5 /10 *i	
			MOST OF STATE	**SW ZONE(1)**			
1984	Ca/Sn/Wf	70	Sep 29 - Dec 7	Oct 13 - Dec 21	1/2 SR to SS	5 /10 *i	
1985	Ca/Sn/Wf	70	Sep 28 - Dec 6	Oct 12 - Dec 20	1/2 SR to SS	5 /10 *i	
1986	Ca/Sn/Wf	70	Oct 4 - Dec 12	Oct 18 - Dec 26	1/2 SR to SS	5 /10 *i	
1987	Ca	45	Oct 3 - Nov 16	Oct 17 - Nov 30	1/2 SR to SS	2 / 4 *i	
(*SH)	Sn/Wf	70	Oct 3 - Dec 11	Oct 17 - Dec 25		5 /10 *i	
1988	Ca	45	Oct 1 - Nov 14	Oct 15 - Nov 28	SR to SS	2 / 4 *i	
	Sn/Wf	70	Oct 1 - Dec 9	Oct 15 - Dec 23		5 /10 *i	
			MOST OF STATE	**SW ZONE(2)**			
1989	Ca	45	Sep 30 - Nov 13	Oct 14 - Nov 27	SR to SS	2 / 4 *j	*j) Bag lim.= 7 w/ only 2 Ca & 2 Wf.
	Sn/Br	80	Sep 30 - Dec 18	Oct 14 - Jan 1		7 /14 *j	Pos lim.= 14 w/ only 4 Ca & 4 Wf.
	Wf	70	Sep 30 - Dec 8	Oct 14 - Dec 22		2 / 4 *j	
1990	Ca/Wf/Br	70	Sep 29 - Dec 7	Oct 13 - Dec 21	1/2 SR to SS	2 / 4 *j	
	Sn	80	Sep 29 - Dec 17	Oct 13 - Dec 31		7 /14 *j	

Table 4.4 continued: Goose seasons in Iowa.

YEAR	GOOSE SPECIES	SEASON LENGTH	SEASON DATES		SHOOTING HOURS	LIMIT BAG/POSS	Additional Bag Limit Information
			MOST OF STATE	**SW ZONE(2)**			
1991	Ca/Wf/Br	70	Sep 28 - Dec 6	Oct 12 - Dec 20	1/2 SR to SS/1	2 / 4 *j	
	Sn	80	Sep 28 - Dec 16	Oct 12 - Dec 30		7 /14 *j	
1992	Ca/Wf/Br	70	Oct 3 - Dec 11	Oct 10 - Dec 18	1/2 SR to SS/1	2 / 4 *j	
	Sn	80	Oct 3 - Dec 21	Oct 10 - Dec 28		7 /14 *j	
			NORTH ZONE(1)	**SOUTH ZONE(1)**			
1993	Ca/Wf/Br	55	Oct 9 - Dec 2	Oct 23 - Dec 16	1/2 SR to SS	2 / 4 *j	
	Sn	80	Oct 9 - Dec 27	Oct 23 - Jan 10, 1994		7 /14 *j	
1994	Ca/Wf/Br	55	Oct 8 - Dec 1	Oct 22 - Dec 15	1/2 SR to SS	2 / 4 *j	
	Sn	102	Oct 1 - Dec 10	Oct 1 - Jan 10, 1995		7 /14 *j	
1995	Ca/Wf/Br	70	Sep 30 - Dec 8	Oct 14 - Dec 22	1/2 SR to SS	2 / 4 *k	*k) Bag lim.= 10 w/ only 2 Ca & 2 Wf.
	Sn	107	Sep 30 - Jan 10	Oct 14 - Jan 10, 1996		10 /20 *k	Pos lim.= 20 w/ only 4 Ca & 4 Wf.
			None	Feb 24 - Mar 10, 1996 south of Interstate 80.			
1996	Ca	2	Sep 14 - 15	None	1/2 SR to SS	2 / 4 *l	*l) Bag lim.= 2 Ca.
	Ca/Wf/Br	70	Sep 28 - Dec 6	Oct 5 - Oct 13	1/2 SR to SS	2 / 4 *m	*m) Bag lim.= 2 Ca , 2 Wf, & 2 Br .
				Oct 19 - Dec 18			Pos lim.= 4 Ca, 4 Wf, & 4 Br.
	Sn	107	Oct 12 - Jan 10, 1997		1/2 SR to SS	10 /30	
			Feb 22 - Mar 9, 1997				
1997	Ca	2	Sep 13 - 14	None	1/2 SR to SS	2 / 4 *l	
	Ca/Wf/Br	70	Oct 4 - Dec 12	Oct 4 - Oct 12	1/2 SR to SS	2 / 4 *m	
				Oct 18 - Dec 17			
	Sn/Ro	107	Oct 4 - Dec 31		1/2 SR to SS	10 /30	
			Feb 21 - Mar 10, 1998				
1998	Ca	2	Sep 12 - 13[b]	None	1/2 SR to SS	2 / 4 *l	
(*HIP)	Ca/Wf/Br	70	Oct 3 - Dec 11	Oct 3 - Oct 11	1/2 SR to SS	[a] 2 / 4 *m	
				Oct 17 - Dec 16			
	Sn/Ro	107	Oct 3 - Dec 31		1/2 SR to SS	20 /none	
			Feb 20 - Mar 10, 1999				
	Sn/Ro	[c]Cons. Or.	March 11-April 16, 1999		1/2 SR to SS1/2	20 /none	
1999	Ca	2	Sep 11 - 12[b]	None	1/2 SR to SS	2 / 4 *l	
	Ca/Wf/Br	70	Oct 2 - Dec 10	Oct 2 - Oct 10	1/2 SR to SS	2 / 4 *m	
				Oct 16 - Dec 15			
	Sn/Ro	107	Oct 2 - Dec 26		1/2 SR to SS	20 /none	
			Feb 19 - Mar 10, 2000				
	Sn/Ro	[c]Cons. Or.	March 11-April 16, 2000		1/2 SR to SS 1/2	20 /none	
2000	Ca	2	Sep 9 - 10[b]	None	1/2 SR to SS	2 / 4 *l	
	Ca/Wf/Br	70	Sep 30 - Dec 8	Sep 30 - Oct 15	1/2 SR to SS	2 / 4 *m	
				Nov 4 - Dec 27			
	Sn/Ro	107	Sep 30 - Jan 14, 2001		1/2 SR to SS	20 /none	
	Sn/Ro	[c]Cons. Or.	Feb 15 - April 15, 2001		1/2 SR to SS 1/2	20 /none	
2001	Ca/Wf/Br	70	Sep 29 - Dec 7	Sep 29 - Oct 21	1/2 SR to SS	2 / 4 *m	
				Nov 10 - Dec 26			
	Sn/Ro	107	Sep 29 - Jan 13, 2002		1/2 SR to SS	20 /none	
	Sn/Ro	[c]Cons. Or.	Feb 2 - April 15, 2002		1/2 SR to SS 1/2	20 /none	

Table 4.4 continued: Goose seasons in Iowa.

YEAR	GOOSE SPECIES	SEASON LENGTH	SEASON DATES		SHOOTING HOURS	LIMIT BAG/POSS	Additional Bag Limit Information
			NORTH ZONE(1)	**SOUTH ZONE(1)**			
2002	Ca/Wf/Br	70	Sep 28 - Dec 6	Sep 28 - Oct 20	1/2 SR to SS	2 / 4 *m	*m) Bag lim.= 2 Ca , 2 Wf, & 2 Br .
				Nov 9 - Dec 25			Pos lim.= 4 Ca, 4 Wf, & 4 Br.
	Sn/Ro	107	Sep 28 - Jan 12, 2003		1/2 SR to SS	20 /none	
	Sn/Ro	[c]Cons. Or.	Feb 1 - April 15, 2003		1/2 SR to SS 1/2	20 /none	
2003	Ca	15	Sep 1 - 15 in metro zones [d]		1/2 SR to SS	3 / 6 *n	*n) Bag lim.= 3 Ca.
	Ca & Br	70	Sep 27 - Dec 5	Sep 27 - Oct 19	1/2 SR to SS	2 / 4 *o	*o) Bag lim.= 2 Ca & 2 Br .
				Nov 8 - Dec 24			Pos lim.= 4 Ca & 4 Br.
	Wf	86	Sept 27 - Dec 21	Sept 27 - Dec 21	1/2 SR to SS	2 / 4	
	Sn/Ro	107	Sep 27 - Jan 11, 2004		1/2 SR to SS	20 /none	
	Sn/Ro	[c]Cons. Or.	Jan 12 - April 15, 2004		1/2 SR to SS 1/2	20 /none	
			NORTH ZONE(2)	**SOUTH ZONE(2)**			
2004	Ca	15	Sep 1 - 15 in metro zones [d]		1/2 SR to SS	3 / 6 *n	
	Ca	2	Sep 11-12	None	1/2 SR to SS	2 / 4 *l	*l) Bag lim.= 2 Ca.
	Ca & Br	60	Sep 25 - Oct 3	Oct 2 - 10	1/2 SR to SS	2 / 4 *o	
			Oct 16 - Dec 5	Oct 30 - Dec 19			
	Wf	86	Sept 25 - Dec 19	Oct 2 - Dec 26	1/2 SR to SS	2 / 4	
	Sn/Ro	107	Sep 25 - Jan 9, 2005		1/2 SR to SS	20 /none	
	Sn/Ro	[c]Cons. Or.	Jan 10 - April 15, 2005		1/2 SR to SS 1/2	20 /none	
2005	Ca	15	Sep 1 - 15 in metro zones [d]		1/2 SR to SS	3 / 6 *n	
	Ca	2	Sep 10-11	Sep 10-11	1/2 SR to SS	2 / 4 *l	
	Ca & Br	70	Oct 1-9	Oct 1-9	1/2 SR to SS	2 / 4 *o	
			Oct 15 - Dec 4	Oct 22 - Dec 4			
			Dec 24 - Jan 2, '06	Dec 24 - Jan 9, '06			
	Wf	72	Oct 1 - Dec 11	Oct 1 - Dec 11	1/2 SR to SS	2 / 4	
	Sn/Ro	107	Oct 1 - Jan 15, 2006		1/2 SR to SS	20 /none	
	Sn/Ro	[c]Cons. Or.	Jan 16 - April 15, 2006		1/2 SR to SS 1/2	20 /none	
2006	Ca	15	Sep 1 - 15 in metro zones [d]		1/2 SR to SS	3 / 6 *n	
	Ca	2	Sep 9-10	Sep 9-10	1/2 SR to SS	2 / 4 *l	
	Ca & Br	90	Sep 30 - Dec 10	Sep 30 - Oct 8	1/2 SR to SS	2 / 4 *p	*p) Bag lim.= 2 Ca & 1 Br .
			Dec 16 - Jan 2, '07	Oct 21 - Jan 9, '07			Pos lim.= 4 Ca & 2 Br.
	Wf	72	Sep 30 - Dec 10	Sep 30 - Dec 10	1/2 SR to SS	2 / 4	
	Sn/Ro	107	Sep 30 - Jan 14, 2007		1/2 SR to SS	20 /none	
	Sn/Ro	[c]Cons. Or.	Jan 15 - April 15, 2007		1/2 SR to SS 1/2	20 /none	
2007	Ca	15	Sep 1 - 15 in metro zones [d]		1/2 SR to SS	5 / 10 *q	*q) Bag lim.= 5 Ca.
	Ca	2	Sep 8-9	Sep 8-9	1/2 SR to SS	2 / 4 *l	
	Ca & Br	90	Sep 29 - Dec 9	Sep 29 - Oct 7	1/2 SR to SS	2 / 4 *p	
			Dec 15 - Jan 1, '08	Oct 20 - Jan 8, '08			
	Wf	72	Sep 29 - Dec 9	Sep 29 - Dec 9	1/2 SR to SS	2 / 4	
	Sn/Ro	107	Sep 29 - Jan 13, 2008		1/2 SR to SS	20 /none	
	Sn/Ro	[c]Cons. Or.	Jan 14 - April 15, 2008		1/2 SR to SS 1/2	20 /none	
2008	Ca	15	Sep 1 - 15 in metro zones [e]		1/2 SR to SS	5 / 10 *q	
	Ca & Br	90	Sep 27 - Oct 5	Sep 27 - Oct 5	1/2 SR to SS	2 / 4 *p	
			Oct 18 - Dec 21	Oct 18 - Dec 21			
			Dec 27 - Jan 11, '09	Dec 27 - Jan 11, '09			
	Wf	72	Sep 27 - Dec 7	Sep 27 - Dec 7	1/2 SR to SS	2 / 4	
	Sn/Ro	107	Sep 27 - Jan 11, 2009		1/2 SR to SS	20 /none	
	Sn/Ro	[c]Cons. Or.	Jan 12 - April 15, 2009		1/2 SR to SS 1/2	20 /none	

Table 4.4 continued: Goose seasons in Iowa.

YEAR	GOOSE SPECIES	SEASON LENGTH	SEASON DATES			SHOOTING HOURS	LIMIT BAG/POSS	Additional Bag Limit Information
			NORTH ZONE(3)	SOUTH ZONE(3)				
2009	Ca	15	Sep 1 - 15 in metro zones [e]			1/2 SR to SS	5 / 10 *q	
	Ca & Br	90	Sep 26 - Oct 4	Sep 26 - Oct 4		1/2 SR to SS	2 / 4 *p	
			Oct 10 - Dec 13	Oct 17 - Dec 13				
			Dec 19 - Jan 3, '10	Dec 19 - Jan 10, '10				
	Wf	72	Sep 26 - Dec 6	Sep 26 - Dec 6		1/2 SR to SS	2 / 4	
	Sn/Ro	107	Sep 26 - Jan 10, 2010			1/2 SR to SS	20 /none	
	Sn/Ro	[c]Cons. Or.	Jan 11 - April 15, 2010			1/2 SR to SS 1/2	20 /none	
2010	Ca	9	Sep 4 - 12 in metro zones [e]			1/2 SR to SS	5 / 10 *q	
	Ca & Br	98	Sep 25 - Oct 10	Oct 2 - Oct 17		1/2 SR to SS	2-3 / 4-6 *r	*r) Bag lim.= 2 Ca & 1 Br through Oct. 31
			Oct 16 - Jan 5, '11	Oct 23 - Jan 12, '11				and 3 Ca & 1 Br thereafter.
	Wf	72	Sep 25 - Dec 5	Oct 2 - Dec 12		1/2 SR to SS	2 / 4	
	Sn/Ro	107	Sep 25 - Jan 9, '11	Oct 2 - Jan 14, '11		1/2 SR to SS	20 /none	
	Sn/Ro	[c]Cons. Or.	Jan 15 - April 15, 2011			1/2 SR to SS 1/2	20 /none	
			NORTH ZONE (4)	SOUTH ZONE (4)				
2011	Ca	9	Sep 3 - 11 in metro zones [e]			1/2 SR to SS	5 / 10 *q	
	Ca & Br	98	Sep 24 - Oct 9	Oct 1 - Oct 16		1/2 SR to SS	2-3 / 4-6 *r	*r) Bag lim.= 2 Ca & 1 Br through Oct. 31
			Oct 15 - Jan 4, '12	Oct 22 - Jan 11, '12				and 3 Ca & 1 Br thereafter.
	Wf	74	Sep 24 - Dec 6	Oct 1 - Dec 13		1/2 SR to SS	2 / 4	
	Sn/Ro	107	Sep 24 - Jan 8, '12	Oct 1 - Jan 13, '12		1/2 SR to SS	20 /none	
	Sn/Ro	[c]Cons. Or.	Jan 14 - April 15, 2012			1/2 SR to SS 1/2	20 /none	
			NORTH ZONE (5)	SOUTH ZONE (5)	MISSOURI RIVER (5)			
2012	Ca	9	Sep 1 - 9 in metro zones [e]			1/2 SR to SS	5 / 10 *q	
	Ca & Br	98	Sep 29 - Dec 11	Oct 6 - Jan 11	Oct 13-Jan 18	1/2 SR to SS	2-3 / 4-6 *r	*r) Bag lim.= 2 Ca & 1 Br through Oct. 31
	Wf	74	Sep 29 - Dec 11	Oct 6 - Dec 18	Oct 13-Dec. 25	1/2 SR to SS	2 / 4	and 3 Ca & 1 Br thereafter.
	Sn/Ro	107	Sep 24 - Jan 8, '12	Oct 1 - Jan 13, '12	Oct 13-Jan 18	1/2 SR to SS	20 /none	
	Sn/Ro	[c]Cons. Or.	Jan 14 - April 15, 2012			1/2 SR to SS	20 /none	

Table 4.4 continued: Goose seasons in Iowa.

GOOSE SPECIES: Ca = Canada goose, Sn = Snow goose, Wf = White-fronted goose, Br = Brant, Ro = Ross's goose

SEASON LENGTH: Maximum number of days the season could be open.

SHOOTING HOURS: SR to SS = sunrise to sunset, 1/2 SR to SS = 1/2 hour before sunrise to sunset, 1/2 SR to 1/2 SS= 1/2 hour before sunrise to 1/2 hour before sunset, 1/2 SR to 1 SS = 1/2 hour before sunrise to 1 hour before sunset. 1/2 SR to SS/1 = 1/2 hour before sunrise to sunset in all of state except SW Zone where shooting hours were 1/2 hour before sunrise to 1:00 PM until Dec. 1 in 1991 and until Nov. 29 in 1992, then 1/2 hour before sunrise to sunset thereafter. 1/2 SR to SS 1/2 = 1/2 hour before sunrise to 1/2 hour after sunset.

LIMIT: BAG = Daily bag limit, **POSS** = Possesion limit

SW ZONE(1) = that portion of the state south and west of a line running from the Iowa-Missouri state line along US Hwy 71 to state Hwy 92 and west on Hwy 92 to the Nebraska-Iowa border.

SW ZONE(2) = that portion of the state south and west of a line running from the Iowa-Missouri state line along U.S. Hwy 71 to I-80, west on I-80 to U.S. Hwy 59, north on U.S. Hwy 59 to State Hwy 37, then NW on Hwy 37 to State Hwy 175, and west on Hwy 175 to the Nebraska-Iowa border.

GOOSE ZONE BOUNDARY (1) = a line running from the Nebraska-Iowa border along state Hwy 175, southeast to State Hwy 37, east to U.S. Hwy 59, south to I-80, and along I-80 to the Iowa-Illinois border. This was the same boundary used to divide the north and south duck zones during 1993-2003.

GOOSE ZONE BOUNDARY (2) = a line running from the Nebraska-Iowa border along state Hwy 20. This change was made in the 2004 season and was maintained through the 2008 season.

GOOSE ZONE BOUNDARY (3) = a line running from the Nebraska-Iowa border along State Hwy 175, east to State Hwy 37, southeast to State Hwy 183, northeast to State Hwy 141, east to U.S. Hwy 30, and along U.S. Hwy 30 to the Iowa-Illinois border. The duck and goose zone bounaries were identical from from 1993-2003. The goose zone boundary was moved to Hwy 20 from 2004-2008. In 2009, the goose zone boundary was changed to match the duck zone boundary, i.e., along Hwy 30.

GOOSE ZONE BOUNDARY (4) = a line beginning on the South Dakota-Iowa border at Interstate 29, southeast to Woodbury Co. Rd. D38, east to Woodbury Co. Rd. K45, southeast to State Highwy 175, east to State Highway 37, southeast to State Highway 183, northeast to State Hwy 141, east to U.S. Hwy 30, and along U.S. Hwy 30 to the Iowa-Illinois border.

GOOSE ZONE BOUNDARY (5) = The North Zone is all of Iowa north of a line beginning on the on the South Dakota-Iowa border at Interstate 29, southeast to State Highway 175, east to State Highway 37, southeast to State Highway 183, northeast to State Highway 141, east to U.S. Highway 30, and along U.S. 30 tp the Iowa-Illinois border. The Missouri River Zone includes all lands and water in Iowa west of Interstate 29 and north of Highway 175. The South Zone is the remainder of the state not in the North or Missouri River Zones.

(*SH) Steel shot required statewide for hunting all migratory gamebirds except woodcock. See Iowa's Duck and Coot Seasons for a complete history of steel shot regulations in Iowa.

(*HIP) First year migratory bird hunters in Iowa registered (by phone) for the federal Harvest Information Program (HIP).

SPECIAL REGULATIONS: Ross's goose season was closed by Federal regulation from 1942-61.

[a] The daily limit was 2 Canada geese through Oct. 31 and 1 thereafter except in the south zone where it was 2 after Nov. 30.

[b] The special 2-day September Canada goose season was only open in the north zone west of Hwy 63.

[c] A conservation order was issued by the USFWS to permit the taking of light geese (snow + ross) after the regular season, including after March 10, the last day regular waterfowl seasons can be open. Hunters could use electronic calls and unplugged shotguns and hunt until 1/2 hour after sunset. Hunters had to be fully licensed to hunt waterfowl in Iowa (no Fed. Mig. Bird stamp) and registered with HIP.

[d] This special September Canada goose season was only open in the Des Moines and Cedar Rapids/Iowa City zones.

[e] This special September Canada goose season was only open in the Des Moines, Cedar Rapids/Iowa City and Cedar Falls/Waterloo zones.

Table 4.5 Waterfowl banded in Iowa. (Numbers include both state and federal bandings.)

Year	Canada Geese	Mallards	Wood Ducks	Blue-winged Teal	Trumpeter Swans	Other Waterfowl Species	Total Waterfowl	Mourning Doves
1964	51	440	488	6,046		273	7,298	0
1965	32	533	571	4,485		120	5,741	0
1966	61	504	564	3,836		172	5,137	0
1967	66	1,928	410	4,022		113	6,539	0
1968	91	1,809	315	3,716		63	5,994	0
1969	53	2,282	414	1,634		135	4,518	0
1970	143	2,368	935	2,649		236	6,331	0
1971	301	1,901	1,644	1,395		330	5,571	0
1972	148	672	1,381	1,000		127	3,328	0
1973	410	1,022	1,665	601		115	3,813	0
1974	268	522	1,333	638		34	2,795	0
1975	222	563	2,026	248		164	3,223	0
1976	544	3,165	1,620	334		19	5,682	0
1977	799	678	1,261	223		25	2,986	0
1978	633	4,418	1,765	1,022		98	7,936	0
1979	409	4,683	1,490	509		3	7,094	0
1980	775	2,175	1,302	1,880		85	6,217	0
1981	736	350	1,523	919		86	3,614	0
1982	975	99	2,747	26		1	3,848	0
1983	1,444	446	2,411	35		3	4,339	0
1984	1,293	110	2,489	38		6	3,936	0
1985	1,710	389	1,953	30		1	4,083	0
1986	1,847	383	2,623	18		3	4,874	0
1987	2,127	380	2,199	98		8	4,812	0
1988	2,421	349	2,115	37		2	4,924	0
1989	1,712	70	2,636	0		0	4,418	0
1990	1,556	13	1,908	64		0	3,541	0
1991	1,880	151	4,874	0		0	6,905	0
1992	2,043	392	3,776	0		13	6,224	0
1993	2,538	130	2,931	0		1	5,600	0
1994	3,737	146	3,631	0		0	7,514	0
1995	3,671	221	6,717	0		0	10,609	0
1996	3,809	263	4,188	0		0	8,260	0
1997	4,852	77	4,375	0		0	9,304	0
1998	4,462	292	4,837	0	58	0	9,649	0
1999	6,073	229	4,669	0	46	0	11,017	0
2000	2,971	133	2,380	0	90	0	5,574	0
2001	2,942	60	3,711	0	78	0	6,791	0
2002	3,479	338	3,146	207	68	0	7,238	0
2003	4,066	259	4,048	0	87	0	8,460	1987
2004	3,338	143	4,769	0	91	0	8,341	2326
2005	4,983	338	2,823	0	113	0	8,257	2079
2006	4,203	210	2,729	0	78	0	7,220	1000
2007	4,283	231	2,321	0	73	0	6,908	986
2008	3,288	157	2,402	100	69	0	6,016	1,699
2009	3,593	31	2,552	0	81	0	6,257	1,266
2010	3,568	8	2,770	0	69	0	6,415	1,084
2011	3,765	40	2,252	0	51	0	6,108	2,227
2012	3,586	254	2,917	0	20	0	6,777	2,205
Totals	101,957	36,355	120,606	35,810	1,072	2,236	298,036	16,859
Recent 10-year Average	3,857	176	2,981	31	78	0	7,122	1,465

Table 4.6 Giant Canada goose production and populations in Iowa.

YEAR	YOUNG PRODUCED	NESTING ADULTS	NONBREEDING ADULTS	TOTAL ADULTS	TOTAL GEESE	% CHANGE FROM PREV. YEAR
1964	24	16	16	32	56	
1965	17	28	37	65	82	46%
1966	66	44	34	78	144	76%
1967	66	42	80	122	188	31%
1968	114	66	100	166	280	49%
1969	121	78	304	382	503	80%
1970	348	228	288	516	864	72%
1971	330	208	234	442	772	-11%
1972	402	268	481	749	1,151	49%
1973	590	404	399	803	1,393	21%
1974	763	498	407	905	1,668	20%
1975	961	602	356	958	1,919	15%
1976	1,234	754	433	1,187	2,421	26%
1977	1,401	914	596	1,510	2,911	20%
1978	2,045	1,266	610	1,876	3,921	35%
1979	2,459	1,588	884	2,472	4,931	26%
1980	3,011	1,969	842	2,811	5,822	18%
1981	3,636	2,238	912	3,150	6,786	17%
1982	3,966	2,531	1,298	3,829	7,795	15%
1983	5,235	3,177	1,486	4,663	9,898	27%
1984	5,796	3,307	1,429	4,736	10,532	6%
1985	6,742	3,791	2,155	5,946	12,688	20%
1986	8,139	4,626	2,610	7,230	15,357	22%
1987	9,418	5,480	2,748	8,228	17,646	15%
1988	10,408	5,820	3,761	9,581	19,989	13%
1989	8,249	4,875	4,993	9,868	18,117	-9%
1990	8,432	5,291	6,168	11,459	19,891	10%
1991	11,218	7,087	7,208	14,295	25,513	28%
1992	16,406	8,931	9,108	18,039	34,445	35%
1993	17,720	10,632	10,079	20,711	38,431	11%
1994	24,732	13,312	12,726	26,038	50,770	32%
1995	28,392	15,262	16,924	32,186	60,578	19%
1996	29,266	16,699	22,030	38,729	67,995	12%
1997	34,057	18,047	22,428	40,355	74,406	9%
1998	36,443	18,794	24,066	42,720	79,157	6%
1999	33,586	17,733	24,826	42,334	75,920	-4%
2000	33,923	17,340	27,163	44,398	78,321	3%
2001	30,264	17,996	27,337	45,246	75,510	-4%
2002	36,071	19,751	30,971	50,674	86,745	15%
2003	36,564	21,072	33,180	54,212	90,776	5%
2004	39,992	22,042	34,990	56,992	96,984	7%
2005	42,905	23,750	37,021	60,751	103,656	7%
2006	42,040	23,734	36,715	60,425	102,465	-1%
2007	37,452	24,590	40,206	64,782	102,234	0%
2008	30,231	23,420	39,320	62,740	92,971	-9%
2009	38,251	23,344	37,931	61,275	99,526	8%
2010	40,940	23,380	41,898	65,278	106,218	7%
2011	40,906	24,039	40,457	64,496	105,402	-1%
2012	37,021	23,363	43,062	66,425	103,446	-2%
2013	23,257	20,042	38,867	55,309	77,926	-25%

UPLAND WILDLIFE

The Iowa Department of Natural Resources (IDNR) conducts 2 statewide surveys to monitor upland game populations in Iowa, the August Roadside survey and the Small Game Harvest survey.

August Roadside Survey is conducted each year by IDNR Enforcement and Wildlife Bureau personnel throughout the state of Iowa during the first half of August. The survey generates data from 215 30-mile routes on ring-necked pheasants, bobwhite quail, gray partridge, cottontail rabbits, and white-tailed jackrabbits. Counts are conducted on sunny, cool mornings with heavy dew. All comparisons are based on total routes run.

The small game harvest survey is a mail survey of Iowa small game hunters conducted following the small game hunting seasons. Each year a random sample of small game hunters (5% of licensed hunters) are send a postcard and survey participants are asked where they hunted, which species they hunted, how many days they hunted, and how many of each species they harvested.

The data from these 2 surveys form the basis for historical information on upland game populations in Iowa and are summarized in the historical text and tables. Both surveys have been conducted annually since 1962. The annual August roadside survey report can be found on the DNR's website at http://www.iowadnr.gov. The results of the annual small game harvest survey can be found at the end of this report.

HISTORICAL SUMMARY OF POPULATIONS AND HARVEST

Ring-necked Pheasant

The genus Phasianus or true pheasant is native to Southeast Asia. The ring-necked pheasant now found in Iowa has been classified as (*Phasianus colchicus torquatus*). This name suggests a cross between 2 of the true Asiatic pheasants. One the Rion Caucasian (Black-necked) pheasant (*Phasianus colchicus colchicus*) native to the area between the Black and Caspian Seas and the true Chinese ring-necked pheasant (*Phasianus torquatus torquatus*) found in eastern China and northwestern Indo-China.

The ring-necked pheasant was first successfully introduced into the United States in the Willamette Valley of Oregon by Owen Denny in 1882. Mr. Denny transported wild birds from China to the US to establish a population on his land. It is believed that the majority of the pheasant range in the US was stocked with birds from this original wild foundation or other wild birds from China.

Early records for Iowa are limited, but accounts suggest attempts were made to establish pheasants in Iowa as early as 1884, but the first recorded successful release was an accidental release following a wind storm of approximately 2,000 birds from the William Benton game farm in Cedar Falls. The source of Mr. Benton's birds is not known with certainty, but reports say they were from an importer in Tacoma,

Washington and thus very likely wild birds from China or wild birds from the Owen Denny Farm. The conservation department mentions pheasants for the first time in 1910. Early on eggs were purchased from breeders (wild or tame is unknown) and given to landowners to raise and release statewide, the 1910 biennial report indicates 6,000 eggs were distributed to applicants in 82 counties. Egg distribution met with poor success and the conservation department established a hatchery in 1913 and by 1914 mostly young birds were distributed (1,088 that year). Another 10,912 birds were distributed statewide from 1915-16. Records show all northwest counties received 200-800 bird plantings of pheasants from 1915 to 1918, with a planting of 2,500 in Winnebago County.

In 1905, it was generally assumed that southern Iowa had better pheasant habitat than northern Iowa. The existence of this belief is supported by the fact that up until 1913 it was customary to make stockings in timber. It is interesting to note Iowa's pheasant populations reached their highest abundance in NW and NC Iowa. The early success, 1920-40's, of pheasants in north central Iowa was undoubtedly due to the abundance of grassy habitats (tame and native hay, oats, flax, and prairie pothole wetlands) interspersed with weedy crop fields.

Pheasants did extremely well in northern Iowa with crop depredation reported in 1923, with the first open season in 1925. Policy changed in 1924-25 and wild birds and eggs were trapped and moved in an effort to establish populations in southern Iowa. Between 1925-1931 some 26,498 wild birds and 60,000 wild eggs were gathered from areas of undue abundance in northern Iowa and distributed to other regions, mostly southern Iowa. From 1927-30 and additional 10,211 birds and 31,372 eggs were distributed in southern Iowa counties. During, 1929-30 the average southern Iowa county received over 500 birds. However, by 1936 the policy on stocking had changed:

" *The old policy of stocking birds without paying attention to the environment has been discontinued … for instance, during the past 20-25 years there have been thousands of pheasants released in southern Iowa and … in except a few cases pheasants disappeared after two or three generations in most counties."*

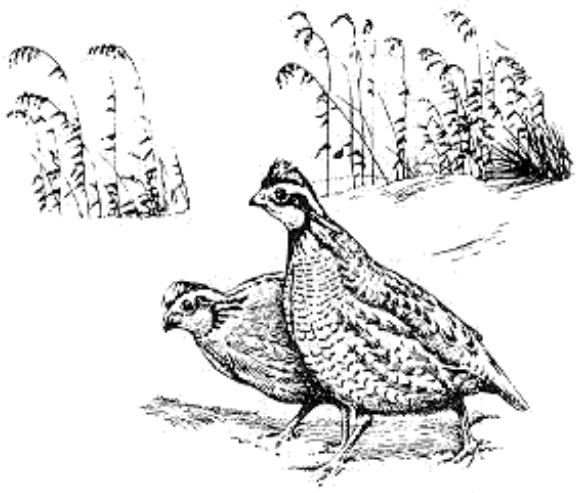
The state game farms were shut down in 1932, but following several bad weather years it was re-established in 1938. Populations recovered with good weather in the 1940's and stocking was greatly reduced, approximately 4,000 chicks and spent adults in 1943. The state game farm operated at approximately the same level until 1961. Through the 1940-50's it became increasingly evident that pen raised birds were not contributing to wild pheasant numbers. Similar to what had been done in 1924-25, in 1955 a new policy of trap and transfer of wild birds was started in southern Iowa. Increasing populations in Union and Adair counties were trapped (1,375 birds) and transplanted to Ringgold, Decatur, Wayne, Washington, and Appanoose counties. Also new wild birds were brought to the state game farm. These new "wild" birds were distributed to unoccupied range (Washington, Keokuk, Henry, Davis, VanBuren counties) thru 1973. The state game farm was closed in late 1970's and dismantled.

Iowa's first pheasant season was held October 20-22, 1925 in Kossuth, Humboldt, Winnebago, Hancock, Wright, Cerro Gordo, Franklin, Mitchell, Floyd, Butler, Grundy, Blackhawk and Bremer counties. The hunting season opened 1/2 hour before sunrise and ended at noon with a bag limit of 3 cocks. It appears the decision to open counties to hunting in these early years was based largely on pheasant crop depredation complaints as annual pheasant censuses, predecessor to the August Roadside Survey, were not begun

until 1935. Flush count records show 7 men flushed 850 pheasants in 5 hours in Hancock county in 1931. By 1945 most of northern Iowa was open to hunting and by 1965 all of Iowa, except a few southeastern counties, was open to pheasant hunting. The entire state was opened to hunting in 1976. Historically (1930-50's), the NW, NC, and C regions had Iowa's highest pheasant densities (Fig. 5.1). However, intensified agriculture has led to a decline in pheasant populations since the 1960's (Fig. 5.2). Regionally, the greatest declines have occurred in the NC, C, and SW regions (Fig. 5.7). By the early 1970's southern Iowa had become the states premiere pheasant range.

Populations have declined following severe winter weather in 1964-65, 1966-67, 1978-79, 1981-82, 2000-01, and 2007-10, with recoveries occurring in years with milder winters (Table 5.1). While the number of broods sighted/30-mile route has also fluctuated with the severity of the winter (Fig. 5.3), the all-time lows recorded in 1983, 1984, 1993, 1999, 2001, and 2007-10 were the results of very cool and/or wet conditions during spring and early summer (Table 5.2; Fig. 5.3). Observed brood sizes have declined slightly since 1962, with the 2010 estimate of 4.0 chicks/brood the lowest ever recorded (Table 5.2; Fig. 5.3). Modest recoveries of all survey parameters occurred between 1984 and 1996 with the enrollment and seeding down of 2.2 million acres of row crops in the 10-year federal Conservation Reserve program (CRP). Pheasant populations in historical ranges, northern and central regions, have rebound since the inception of CRP (Fig 5.7). Populations in the southern regions initially responded to CRP the same way northern and central populations did, but have declined since 1992. Declines in SW and SC regions, in particular, are likely related to wet weather during the nesting season, lack of habitat management on CRP acres and other land use changes. The pheasant season opens the last Saturday in October and runs through January 10th, statewide with a bag/possession limit of 3/12 roosters (Table 5.10). Shooting hours are 8 a.m. to 4:30 p.m. Iowa's first youth pheasant season was held during the 1997-98 hunting season. Youth hunting was allowed statewide for resident hunter's 15 years or younger whom a licensed adult accompanied. The youth pheasant season opens the weekend proceeding the regular season. Bag limit is 1 rooster/day with 2 in possession after the first day (Table 5.10).

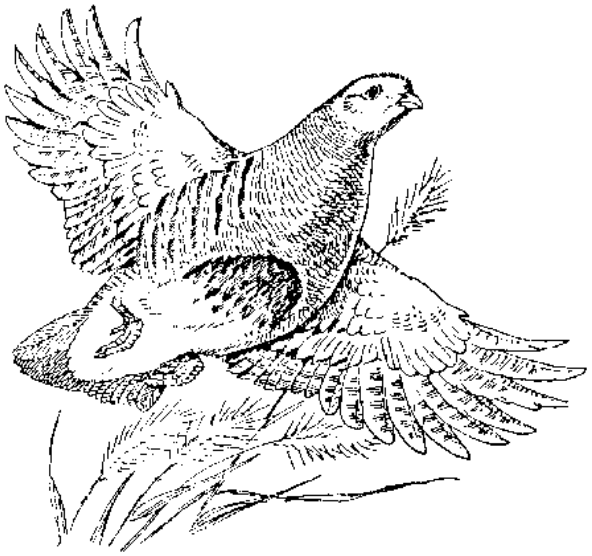
Bobwhite Quail



Our native bobwhite was probably never very abundant on Iowa's virgin prairie; most populations were likely restricted to the prairie-timber edges of Iowa. Early settlement changed Iowa's landscape forever. At least initially these changes proved to be a boom to Iowa's quail population. Between 1860-90 settlers began carving up Iowa a 1/4 section at a time, but early settlers lacked timber and wire to make fences, so they planted Osage hedges instead. Three to 6 miles of some of the finest quail cover ever grown in ever 1/4 section, all within spitting distance of newly planted "weedy" grain fields. Quail populations exploded like never seen before or likely to be seen again. Quail could be found in every county, but these conditions could not last. By 1920 reports

show quail populations beginning to decline as farming practices improved and hedgerows were replaced with barbed wire fence. The 1931-32 winter quail survey reported population densities of 1 quail per 20-40+ acres in the northern third of the state, 1 quail/6-20 ac. in the central third and 1 quail/1-6 ac. in the southern third of the state. However, quail populations have declined steadily, both nationally and in Iowa since the 1930's. Large scale landscape changes and clean farming practices are considered the major factors in this decline. Since survey procedures were standardized in the early 1960's the mean number of quail/30 miles sighted on the August roadside survey has fluctuated over the years with significant declines occurring since 1977 (Fig. 5.6). This decline, along with the severe fluctuations in SW and SC Iowa in recent years, are related to losses in shrubby habitat and clean farming practices that have occurred since row-crop agriculture expanded in the mid 70's and early 80's (Fig. 5.8). Similar to pheasants, quail numbers have declined sharply following harsh winters in 1964-65, 1966-67, 1978-79, 1981-82, 2000-01, and 2007-10. (Fig. 5.8).

Quail have been hunted in Iowa since settlement. The first bag limit was set in 1878 at 25 birds/day, it was reduced to 15/day in 1915. The season was closed in 1917 and a limited season reopened in 1933. Currently the season opens the last Saturday in October and runs through January 31st, statewide, with a bag/possession limit of 8/16 birds. Shooting hours are 8 a.m. to 4:30 p.m. (Table 5.11).



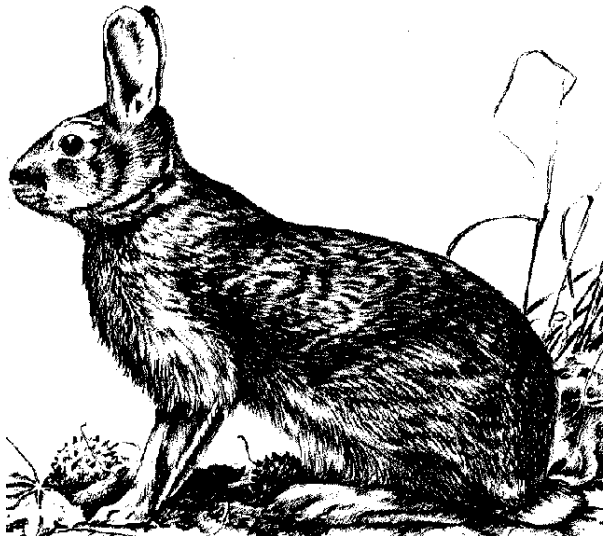
Gray Partridge

Senator H.W. Grant of Waterloo made the first release of Hungarian or gray partridge in Iowa in Blackhawk county in 1902, but all 50 birds died. The first successful release of Huns in Iowa occurred in Palo Alto county in 1905. This release constitutes Iowa's first wild stock. Successful releases were made in Humboldt county in 1906, O'Brien in 1909, and in Kossuth in 1910. By 1914 most northern Iowa counties had received standardized releases of 20 pairs each. All releases, similar to pheasants, were made on leased timbered lands. Reports show many local farmers were surprised when the bird promptly moved to the nearest prairie upland. By 1932 it is estimated the state conservation commission had stocked 20,000+ partridge in Iowa. Most plantings were in northern Iowa, although a few were attempted in south central Iowa; all southern attempts failed. The birds gained their strongest hold in northwest Iowa in Osceola, O'Brien, Dickinson, and Clay counties and were generally present in most northern Iowa counties by 1940.

While numbers of other upland game birds have decreased over time, the number of gray partridge sighted on roadside counts had been increasing until 1990 (Fig. 5.6). Not only had the mean number partridge per 30-mile route increased statewide, but partridge

populations had expanded their range from the NW and NC regions to all other regions of the state by 1986 (Fig. 5.9). While losses of woody cover and nesting cover have created less favorable conditions for pheasant and quail, partridge have been more adept at coping with row-crop expansion. The statewide increase in partridge numbers between 1983-89 can be attributed a drought during these years and improved nesting conditions on land enrolled in CRP. Following the drought populations have returned to levels seen prior to 1983 (Fig. 5.6). Huns were imported to this country from the arid, steppe region of southeastern Europe and northern Asia, and research has shown they do not reproduce well in this country during years with wet springs.

Iowa's first partridge season was held in 11 northwestern counties in 1937-39. Standardized hunting seasons were established in 1963. Partridge season opens the second Saturday in October and runs through January 31st, statewide, with a bag/possession limit of 8/16 birds. Shooting hours are 8 a.m. to 4:30 p.m. (Table 5.12).



Eastern Cottontail

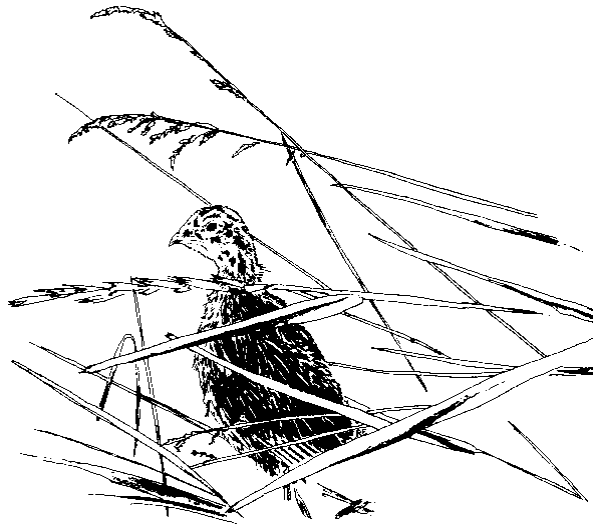
Little is known about the presettlement distribution of cottontail rabbits in Iowa. Cultivation by man no doubt favored rabbits much the same way it favored quail at the turn of the century. Cottontails prefer habitats similar to quail, favoring shrubby-grassy edge habitats. Cottontails may have up to 6 litters a year in Iowa and reproduce best during warm moderately wet springs. Numbers of cottontail rabbits observed on the August roadside survey have fluctuated with changing land use and weather conditions (Fig. 5.6). Hunter interest has declined in recent years (Fig 5.12). Cottontails have been hunted in Iowa since settlers first arrived. The cottontail season was standardized in 1978 and opens the first Saturday in September and runs through February 28th, statewide, with a bag/possession limit of 10/20 rabbits. Shooting hours are sunrise to sunset (Table 5.13). The rule regarding the opening day of the cottontail season was changed in 1997 to open the 1997-98 season on Sept. 1st. This change in date allows inclusion of the Labor day weekend in all years.

White-tailed Jackrabbit

Before settlement white-tailed jackrabbits could be found everywhere in Iowa, except for a few southeastern counties. They appear in greatest abundance on the glaciated soils of the Des Moines Lobe and the Missouri Loess soils of northwestern Iowa. They are most at home on the wide-open expanses of prairie/wetland/pasture habitat types, although moderate cultivation favors the species. Dry growing seasons appear conducive to jackrabbit abundance as

population's decline in wet years. Jackrabbit counts have declined greatly over time, closely paralleling the losses of pasture, hay, and small grain acreage's. Because of this downward trend the bag/possession limit was reduced from 2/4 to 1/2 following the 2005-06 hunting season The hunting season on jackrabbits was closed during 2011-12 hunting season because of continued declines on DNR roadside surveys. It may be reopened if populations recover due to landscape changes like grass based biomass.

Jacks have been hunted in Iowa since the time of settlement. Conservation officers reported hunters killing 180+ jacks on two circle hunts in Carroll and Buena Vista counties during the winter of 1960. The jackrabbit season opens the last Saturday in October and runs through December 1st, statewide, with a bag/possession limit of 1/2 rabbits. Shooting hours are sunrise to sunset (Table 5.13). Harvests have tended to decline (Fig. 5.6) with the decline in jackrabbit numbers and declining hunter interest.



2012 Small Game Harvest Survey Results

A random survey of licensed hunters was conducted following the 2012 small game season to determine the size and distribution of Iowa's small game harvest. Survey questionnaires were mailed to 8,315 license holders. Survey participants were asked which species they hunted, how many days they hunted, and how many of each species they harvested. Survey participants returned 3,275 usable questionnaires for a response rate of 39%. The DNR sold 207,884 unique hunting licenses in 2012-13. Based on survey responses an estimated 62,192 license holder's hunted small game (pheasant, quail, partridge, cottontail, or squirrel). This is a 5% increase in small game hunters compared to the year before.

By residency, the number of resident small game hunters increased 6%, from 52,507 in 2011 to 55,710 in 2012, while the number nonresident small game hunters fell 8% from 7,079 in 2011 to 6,482 in 2012. Pheasant were the most commonly reported species hunted by small game hunters (76%), while squirrels where the second most sought after species with 35% of small game hunters indicating they hunted squirrels.

Hunters from 44 different states visited Iowa last fall to hunt. Over 52% of Iowa's nonresident hunters came from 4 states, Minnesota, Wisconsin, Michigan, and Illinois in that order. The typical small game hunter reported hunting a little over 8 days last fall.

Ring-necked Pheasant – An estimated 47,180 pheasant hunters (23% of licensed hunters, 76% of small game hunters) took to Iowa's fields last fall and harvested 158,099 roosters (Table 5.6 and 5.9). The number of pheasant hunters increased 3%, while total harvest increased 45% compared to 2011 estimates. Roadside counts showed populations increased 18% compared to 2011, so the increase in hunters and harvest was expected. An estimated 5,742 nonresident hunters contributed to Iowa's total estimate of pheasant hunters. Iowa's peak year for nonresident pheasant hunters was 1997 with 50,349. Resident hunter numbers increased 5% while the number of nonresident pheasant

hunters declined -11% (Table 5.7). This is the first increase in pheasant hunters since 2005 (Table 5.9).

Resident hunters hunted an average of 6.3 days last fall and harvested 3 birds during the season. Nonresident pheasant hunters averaged 4.3 days afield and harvested 4 birds for the season. Hunter success (harvest/day) was highest through the first 2 weekends of the season. Approximately 38% of the total pheasant harvest occurred in the first 9 days of the 2012 season. Fifty-six percent of pheasant hunters reported hunting 4 days or less. Resident hunters accounted for 87% of the total pheasant harvest.

The improved winter and spring weather conditions in 2012, as predicted, led to the first increase in pheasant harvest since 2005. The pheasant harvest estimate however, remains -70% below the 10-year average, and -86% below the historic average harvest of 1.1 million roosters (Table 5.6). Unfortunately Iowa's weather pattern for 2013 returned to a snowy winter and a wet and cold spring, thus it does not appear the population will continue the rebound in 2013.

Bobwhite Quail - Approximately 8,769 quail hunters (4% of licensed hunters, 14% of small game hunters) harvested 20,474 quail during the 2012 quail season (Table 5.6 & 5.9). Hunter numbers declined -7% while harvest improved significantly compared to 2011 estimates. Quail hunters averaged 5 days a field and harvested 2 birds for the season (Table 3). Fifty-five percent of the quail harvest occurred in the first month of the 2012 season (Table 4). Sixty-two percent of quail hunters hunted 4 days or less. Resident quail hunters accounted for 95% of the total quail harvest. Roadside counts showed quail numbers had increased 63% over 2011 estimates (Table 5.3), thus the improved hunter harvest was expected(Table 5.7).

Gray Partridge, Eastern Cottontail and White-tailed Jackrabbit – Hunter trends, season dates, and harvest for these species can be found in Tables (5.6, 5.9, 5.12, and 5.13) and Figures (5.6, 5.9, 5.10, and 5.12).

Table 5.1. Mean number of pheasants counted/30-mile route on the August roadside survey regionally and statewide (1962-present). Severe winter weather preceded the August counts in 1965, 75, 79, 01, 04 08, 10, 11. Abnormally wet weather occurred during 1973, 82, 84, 95, 99, 01, 08, 13 nest seasons. Winter sex ratio and cock harvest data are statewide estimates. Sex ratio counts were done the year succeeding the year listed.

YEAR	NORTH WEST	NORTH CENTRAL	NORTH EAST	WEST CENTRAL	CENTRAL	EAST CENTRAL	SOUTH WEST	SOUTH CENTRAL	SOUTH EAST	STATEWIDE	SEX[a] RATIO	COCK[b] HARVEST
1962	84.7	95.5	85.3	85.0	74.6	32.3	44.4		12.8	65.9		
1963		200.4	40.8		60.3		200.4		19.8	52.6	2.9	66%
1964	99.9	138.0		101.6	54.4	53.9	92.6	26.3	18.3	79.4	4.3	77%
1965	46.0	67.5	47.8	64.7	36.2	43.9	97.6	44.6	22.8	49.9	3.2	69%
1966	43.5	75.3	57.5	58.4	49.3	63.9	144.1	40.7	17.1	56.6	3.1	68%
1967	31.0	56.8	57.2	42.4	53.2	58.6	108.3	38.8	21.1	49.1	4.2	76%
1968	38.0	56.0	56.6	53.5	52.2	64.3	127.4	38.7	19.7	52.7	3.6	72%
1969	18.8	44.7	62.5	42.2	57.6	57.2	77.9	44.2	25.2	45.5	3.5	71%
1970	39.2	53.0	59.6	56.1	87.8	91.7	129.1	63.8	40.5	66.2	3.5	71%
1971	34.6	45.2	49.0	66.2	82.6	104.3	101.6	49.7	48.4	62.0	3.6	72%
1972	37.9	44.6	61.0	61.4	73.2	88.6	112.3	54.3	25.8	59.6	2.0	50%
1973	47.0	56.9	65.4	66.3	88.7	103.5	72.4	54.3	30.2	65.8	3.7	73%
1974	46.6	53.2	52.5	60.5	40.0	55.9	90.1	49.6	16.8	49.7	4.5	78%
1975	10.5	28.7	52.3	34.3	43.2	64.3	51.0	45.4	27.4	38.8	4.8	79%
1976	14.8	42.2	68.1	44.8	54.9	75.4	61.7	49.2	28.7	48.2	4.0	75%
1977	26.9	44.2	86.7	56.9	50.8	78.5	75.1	44.3	24.4	51.7	3.6	72%
1978	36.3	26.1	68.8	67.8	50.5	63.2	76.7	45.5	30.5	49.7	3.9	74%
1979	40.1	29.6	44.8	49.4	39.2	39.6	80.9	51.5	21.8	42.4	3.5	71%
1980	51.2	61.7	81.2	98.7	72.2	63.5	82.1	68.9	37.2	67.0	3.7	73%
1981	66.4	53.5	83.6	92.9	57.8	72.9	97.1	57.8	35.2	65.9	3.4	71%
1982	26.7	27.9	38.9	55.5	23.1	20.9	41.6	47.7	19.3	32.3	2.9	66%
1983	9.6	12.8	21.7	21.6	13.3	25.3	42.6	51.1	27.5	23.7	2.9	66%
1984	8.8	11.1	19.2	22.1	14.4	24.5	23.8	38.5	26.4	20.6	2.6	62%
1985	21.6	28.0	36.4	40.0	32.7	26.0	59.2	72.6	42.0	38.9	2.1	52%
1986	27.5	20.4	48.2	31.2	24.8	29.0	49.7	65.2	27.2	34.8	2.0	50%
1987	40.2	36.8	59.7	61.4	41.1	33.2	58.5	64.2	39.0	46.8	2.9	66%
1988	33.6	35.0	45.1	60.8	29.6	26.0	45.7	49.8	29.8	38.1	3.3	70%
1989	25.3	36.5	52.1	69.9	57.1	35.3	38.6	40.0	39.0	43.2	2.9	66%
1990	34.3	49.4	63.9	57.9	44.3	24.7	44.5	31.7	27.3	41.2	5.5	82%
1991	37.3	45.3	48.8	77.6	41.6	33.3	61.2	49.4	41.6	46.8	Discontinued	
1992	24.4	50.5	30.5	44.0	42.1	37.8	29.4	23.6	34.2	35.8		
1993	15.8	21.4	15.2	55.2	23.8	25.0	34.3	24.0	28.1	25.9		
1994	45.0	74.1	33.3	83.3	55.6	67.8	47.3	46.0	56.7	56.9		
1995	26.0	63.2	37.6	44.7	54.3	54.3	43.7	27.8	43.2	44.6		
1996	54.7	61.8	29.5	45.2	49.8	59.4	29.8	19.5	28.2	43.4		
1997	46.1	62.0	41.2	37.3	54.7	47.4	31.7	28.8	41.3	44.8		
1998	74.2	56.7	43.1	33.9	49.6	53.9	18.1	15.7	41.7	44.6		
1999	42.7	33.6	21.6	19.5	37.9	36.0	17.5	12.9	27.0	29.1		
2000	60.6	33.3	14.9	29.0	50.3	37.0	25.5	19.3	22.0	34.3		
2001	22.4	16.0	6.2	8.4	22.0	19.0	12.0	7.3	4.6	13.9		
2002	47.0	42.9	13.6	32.0	49.9	32.0	15.7	11.7	22.6	31.7		
2003	81.2	67.3	20.7	36.1	61.2	35.6	29.3	21.8	28.2	44.9		
2004	54.4	34.4	19.0	21.5	35.6	24.4	24.9	19.6	24.4	29.7		
2005	63.5	42.3	25.3	32.0	49.9	25.9	28.9	12.6	23.5	35.1		
2006	48.3	36.1	18.4	23.7	36.8	20.4	20.3	9.0	20.0	27.0		
2007	41.3	35.0	20.1	26.0	36.2	25.0	12.8	5.6	19.8	25.8		
2008	49.4	25.4	9.1	21.2	18.6	7.4	5.7	4.4	5.3	17.5		
2009	35.5	16.6	2.6	23.5	19.1	9.3	10.0	4.8	10.1	15.4		
2010	29.6	16.2	4.7	8.8	11.7	5.3	6.1	1.8	6.6	10.8		
2011	11.1	7.3	2.4	5.5	10.2	5.9	6.3	2.9	4.7	6.6		
2012	16.3	10.9	1.3	3.5	12.3	6.3	4.4	4.0	5.4	7.8		
Statistics:												
10 Year Avg.	43.1	29.2	12.3	20.2	29.2	16.5	14.9	8.6	14.8	22.1		
Long-term Av	39.4	46.7	40.5	46.7	44.8	43.8	55.7	34.7	26.3	41.4	3.4	69%
Percent Change from:												
2011	46.4	49.0	-45.7	-36.2	20.0	6.9	-30.2	38.9	15.4	17.9		
10 Year Avg.	-62.2	-62.5	-89.6	-82.5	-58.0	-62.1	-70.6	-53.7	-63.4	-64.8		
Long-term Av	-58.7	-76.6	-96.8	-92.5	-72.6	-85.7	-92.1	-88.5	-79.4	-81.2		

[a] Hens per cock.

[b] Percent cock harvest calculated as [((hens/cocks)-1)/(hens/cock)] *100 (Wooley, J.B. etal.1978. IA WL Res Bull No 24.)

Table 5.2. Mean number of broods counted/30-mile route and chicks/brood observed on the August roadside survey, (1962-present).

	NORTH WEST		NORTH CENTRAL		NORTH EAST		WEST CENTRAL		CENTRAL		EAST CENTRAL		SOUTH WEST		SOUTH CENTRAL		SOUTH EAST		STATEWIDE	
	BROODS PER 30 MI	CHICKS PER BROOD	BROODS PER 30 MI	CHICKS PER BROOD	BROODS PER 30 MI	CHICKS PER BROOD	BROODS PER 30 MI	CHICKS PER BROOD	BROODS PER 30 MI	CHICKS PER BROOD	BROODS PER 30 MI	CHICKS PER BROOD	BROODS PER 30 MI	CHICKS PER BROOD	BROODS PER 30 MI	CHICKS PER BROOD	BROODS PER 30 MI	CHICKS PER BROOD	BROODS PER 30 MI	CHICKS PER BROOD
YEAR																				
1962	10.1	5.1	11.5	5.7	10.1	6.3	9.6	7.7	8.0	7.5	4.2	5.4	5.5	5.8			1.0	7.3	7.7	6.3
1963	17.2		16.6		11.7	5.2	12.3		8.4	5.9	5.8		15.4	5.4	3.4		2.6	5.4	10.4	5.4
1964	12.1	5.2	17.0	6.1	22.7	7.3	13.0	5.8	7.3	5.3	6.5	6.2	12.1	6.4	3.1	8.7	1.8	6.3	9.8	6.1
1965	5.9	5.9	8.0	6.2	5.7	5.7	8.7	5.0	4.7	5.8	4.8	7.6	13.3	5.8	5.9	6.0	2.5	6.0	6.2	6.0
1966	5.5	5.6	9.2	5.9	7.7	4.5	8.1	5.9	6.2	6.4	7.7	6.3	19.0	6.3	5.1	6.2	1.8	7.4	7.2	6.0
1967	3.9	4.6	6.7	5.3	7.1	5.4	5.3	4.8	7.0	5.0	7.5	5.5	13.9	5.4	6.0	5.6	2.3	5.1	6.3	5.2
1968	5.2	5.1	6.4	6.2	6.3	6.3	7.3	5.1	7.1	5.8	8.5	5.6	16.8	5.8	5.5	5.9	2.3	6.4	6.8	5.8
1969	2.3	4.9	5.4	6.0	7.5	6.7	5.2	5.8	7.0	5.6	8.7	5.0	10.8	5.4	6.4	5.5	3.3	5.4	6.0	5.5
1970	5.4	5.9	7.0	5.7	7.7	6.1	7.4	5.7	12.3	5.9	11.7	6.2	18.0	6.4	8.8	5.9	4.6	6.4	8.8	6.0
1971	4.2	5.5	6.3	5.4	6.8	5.0	9.6	4.9	10.7	6.2	14.0	5.8	15.0	5.7	7.4	5.4	6.8	5.8	8.5	5.5
1972	5.2	5.3	5.9	5.7	8.6	5.4	8.1	5.0	9.8	5.9	11.2	6.0	15.1	6.1	7.7	5.7	3.8	4.8	8.0	5.6
1973	6.4	4.6	7.2	5.6	8.8	5.5	8.6	4.7	11.8	5.1	13.0	5.6	9.7	5.4	7.5	5.9	4.1	5.5	8.6	5.3
1974	6.7	4.6	7.3	4.8	6.9	5.5	8.5	5.0	5.4	4.7	8.3	4.4	12.1	5.4	7.8	5.0	2.2	5.2	7.0	4.9
1975	1.4	5.4	4.1	5.0	8.3	4.9	4.7	5.3	6.4	4.8	9.1	5.1	7.4	5.4	6.5	5.8	4.4	5.2	5.7	5.2
1976	2.3	5.1	6.0	5.1	9.7	5.1	6.3	5.2	8.9	4.6	11.3	5.3	9.7	5.2	7.8	5.4	3.9	4.9	7.2	5.1
1977	4.6	4.9	6.4	5.7	12.8	5.6	10.7	4.6	7.7	4.7	13.1	4.8	12.3	5.2	7.1	5.1	4.1	4.7	8.3	5.0
1978	5.9	5.2	3.5	5.4	9.1	5.4	9.9	5.0	6.9	5.4	8.8	5.5	11.1	5.5	7.4	5.5	4.0	5.8	7.1	5.4
1979	6.7	4.5	4.0	5.7	5.5	5.3	7.3	5.4	5.4	5.9	6.1	5.0	11.1	5.8	8.7	5.2	3.3	5.0	6.3	5.3
1980	8.1	4.9	9.4	5.2	12.1	5.2	16.6	4.9	11.3	5.0	9.9	4.8	13.5	4.5	11.6	5.3	5.8	5.2	10.7	5.0
1981	11.4	4.4	8.7	4.9	11.2	5.4	15.5	4.8	10.0	4.6	11.5	5.0	16.9	4.4	8.8	5.2	5.5	4.7	10.7	4.8
1982	4.4	4.3	4.1	5.3	6.2	4.9	8.9	4.7	3.6	5.6	3.0	4.5	6.9	4.3	6.8	5.4	2.9	4.2	5.0	4.9
1983	1.6	4.7	1.9	4.9	3.1	5.2	2.8	4.9	1.8	5.4	3.6	5.4	5.9	5.3	7.5	5.9	3.8	5.8	3.4	5.3
1984	1.3	5.9	1.5	5.7	2.8	5.3	3.5	5.2	2.3	5.0	3.6	5.1	3.6	4.4	5.8	5.2	4.1	4.8	3.1	5.2
1985	3.5	5.4	4.2	5.3	4.9	6.1	5.8	5.3	5.4	5.5	3.9	5.4	8.9	5.7	12.2	5.3	5.7	6.1	6.0	5.5
1986	3.9	5.9	2.9	5.0	7.1	5.5	5.6	3.8	4.1	4.7	4.9	4.4	8.1	4.9	10.3	5.3	3.8	4.9	5.4	5.0
1987	5.8	6.2	5.0	6.2	8.5	5.8	9.3	5.1	6.3	4.9	4.8	5.6	9.9	5.0	10.5	5.4	5.7	5.4	7.1	5.5
1988	5.3	5.1	5.0	5.6	5.8	6.6	9.7	5.1	4.0	6.1	3.5	5.8	7.8	4.9	8.5	4.9	4.3	5.5	5.7	5.5
1989	3.8	5.2	5.0	5.9	8.2	5.1	10.9	5.3	8.1	5.4	5.5	5.4	6.9	4.6	6.5	5.2	5.5	5.9	6.5	5.4
1990	5.2	5.0	6.9	5.4	9.6	5.4	9.8	4.5	6.6	4.9	3.9	4.7	7.3	4.9	5.8	4.4	4.1	5.2	6.4	4.9
1991	5.8	4.7	6.4	5.4	7.7	5.4	12.5	4.8	7.1	4.3	4.9	5.0	11.5	4.2	7.9	5.1	6.6	5.2	7.5	4.9
1992	4.3	4.0	7.1	5.6	4.6	4.9	6.9	4.4	6.8	4.4	5.7	5.2	5.1	4.1	4.2	3.9	5.6	4.7	5.7	4.6
1993	2.4	4.8	3.4	5.4	2.3	4.9	8.9	5.1	3.8	5.2	3.6	5.4	5.8	4.3	3.7	5.5	4.2	5.2	4.0	5.1
1994	7.5	4.6	11.2	5.5	5.7	4.5	14.2	4.5	9.4	4.8	10.0	5.4	8.9	4.1	6.8	5.4	8.7	5.4	9.1	5.0
1995	4.8	4.6	10.1	5.0	5.7	5.4	8.1	4.5	9.4	4.5	7.4	6.1	7.3	4.6	4.3	5.5	6.1	5.6	7.2	5.1
1996	9.1	4.6	9.6	5.0	4.8	4.5	7.4	4.6	8.5	4.9	8.9	5.6	5.6	4.0	3.7	3.7	4.0	4.8	7.1	4.7
1997	6.8	5.7	9.1	5.1	6.7	5.1	5.9	5.0	8.6	5.1	7.0	5.4	5.7	3.7	3.8	6.9	6.1	6.3	6.8	5.4
1998	14.1	4.2	9.6	4.7	6.7	5.4	6.1	4.7	8.3	4.6	8.8	5.2	4.3	3.2	2.7	4.3	6.3	5.1	7.7	4.6
1999	7.2	4.5	5.5	4.1	3.5	4.6	3.5	4.2	6.1	4.6	4.7	5.8	3.1	3.8	1.9	5.2	4.1	5.9	4.6	4.7
2000	11.3	4.7	5.5	4.9	2.4	4.7	4.7	5.3	8.8	4.2	5.7	5.2	4.4	4.3	3.5	3.7	3.3	5.2	5.8	4.7
2001	3.3	4.6	2.7	4.6	0.9	5.4	1.6	3.2	3.3	4.9	2.9	5.6	2.3	3.8	1.2	4.4	0.7	3.4	2.2	4.5
2002	7.4	5.1	7.8	5.0	2.4	4.7	5.3	4.8	7.9	5.0	4.5	5.9	3.5	3.4	1.8	5.5	3.6	5.5	5.2	5.1
2003	13.9	4.5	10.3	5.4	4.1	3.7	5.6	5.4	10.3	4.6	5.6	5.3	4.7	4.9	3.5	4.6	4.1	5.3	7.3	4.9
2004	9.5	4.1	6.0	4.0	2.7	4.5	4.1	3.4	6.2	4.1	3.5	5.0	4.8	3.7	3.4	4.4	4.6	4.2	5.2	4.1
2005	11.7	4.2	7.2	4.3	4.2	4.7	6.1	3.9	8.3	4.6	3.5	5.2	4.9	4.2	2.1	4.8	3.9	5.1	6.0	4.6
2006	7.7	4.8	7.1	4.1	3.4	4.0	4.7	4.0	6.6	4.3	4.0	4.1	4.1	3.9	1.4	4.5	3.1	5.1	4.8	4.3
2007	7.7	4.2	6.1	4.3	3.4	4.1	4.7	4.7	6.4	4.3	4.5	4.3	2.4	3.6	0.8	4.2	3.3	5.1	4.6	4.3
2008	8.6	4.6	4.0	4.2	1.5	3.4	2.9	4.9	2.7	4.4	1.1	5.0	0.8	3.5	0.7	4.3	0.8	3.9	2.7	4.4
2009	5.5	4.4	2.9	3.4	0.6	2.2	3.9	4.6	2.7	5.1	1.2	6.4	1.9	4.1	0.8	4.6	2.2	3.6	2.5	4.4
2010	4.9	4.0	2.7	4.5	1.0	4.0	1.8	3.8	2.1	3.9	0.8	5.0	0.9	4.8	0.5	2.5	1.2	4.2	1.9	4.0
2011	1.7	4.1	1.2	4.2	0.4	4.8	0.9	4.0	1.8	4.0	1.0	4.9	1.1	5.0	0.4	2.0	0.7	3.0	1.1	4.8
2012	2.7	4.9	1.6	5.2	0.3	3.4	0.6	3.9	1.9	5.1	1.0	6.0	0.8	3.7	0.6	5.0	0.8	5.7	1.2	4.9
Statistics:																				
10 Year Avg.	7.4	4.4	4.9	4.4	2.2	3.9	3.5	4.3	4.9	4.4	2.6	5.1	2.6	4.1	1.4	4.1	2.5	4.5	3.7	4.5
Long-term Avg	6.3	4.9	6.5	5.2	6.2	5.1	7.2	4.8	6.7	5.1	6.2	5.4	8.2	4.8	5.3	5.1	3.8	5.3	6.2	5.1
Percent Change from:																				
2011	57.8	18.4	37.6	22.4	-32.5	-29.2	-27.8	-2.6	6.7	26.1	0.0	22.7	-23.8	-26.4	45.5	147.0	1.5	87.7	14.9	3.6
10 Year Avg.	-63.1	11.8	-66.7	18.5	-87.1	-12.5	-82.4	-8.6	-60.4	14.7	-61.5	16.8	-69.2	-11.5	-55.0	23.0	-69.6	26.2	-66.5	10.2
Long-term Avg	-56.9	0.3	-74.8	0.0	-95.5	-33.4	-91.5	-19.6	-71.1	0.6	-84.0	11.5	-90.1	-23.4	-88.0	-1.4	-80.3	8.8	-79.9	-3.3

Table 5.3 Mean number of bobwhite quail and white-tailed jackrabbits counted/30-mile route on the August roadside survey, regionally and statewide (1962 - present).

	QUAIL PER ROUTE										JACK-
YEAR	NORTH WEST	NORTH CENTRAL	NORTH EAST	WEST CENTRAL	CENTRAL	EAST CENTRAL	SOUTH WEST	SOUTH CENTRAL	SOUTH EAST	STATEWIDE	RABBITS STATEWIDE
1962	0.00	0.00	0.00	2.22	0.25	0.18	0.88		2.00	0.62	0.45
1963	0.00	0.29	0.08	0.50	0.47	0.13	0.54	5.58	3.20	1.12	0.41
1964	0.00	0.00	0.29	0.64	0.50	0.60	0.83	4.69	4.47	1.39	0.53
1965	0.81	0.04	0.32	0.28	0.25	0.81	2.08	6.76	8.27	2.21	0.35
1966	0.22	0.00	0.12	0.11	0.44	3.05	2.58	6.65	7.59	2.29	0.35
1967	0.38	0.00	0.16	0.56	0.20	1.81	2.17	5.48	8.09	2.10	0.60
1968	0.00	0.00	0.28	0.17	0.65	2.68	3.46	5.81	5.55	2.06	0.28
1969	0.00	0.00	0.00	0.06	1.68	3.00	6.83	8.58	5.40	2.60	0.31
1970	0.00	0.00	0.00	0.00	0.17	1.64	10.75	10.15	7.36	2.95	0.15
1971	0.00	0.00	0.00	0.06	0.52	1.35	11.42	6.82	6.79	2.64	0.35
1972	0.00	0.00	0.00	0.26	0.25	1.13	10.27	6.84	3.80	2.26	0.30
1973	0.00	0.00	0.00	0.21	1.24	1.29	13.31	6.58	5.55	2.54	0.20
1974	0.00	0.00	0.11	0.25	0.13	1.00	8.07	6.39	5.13	2.11	0.07
1975	0.00	0.00	0.00	2.00	0.30	0.92	7.64	3.78	5.64	1.98	0.11
1976	0.00	0.00	2.00	2.21	0.16	2.04	2.40	7.39	4.68	2.19	0.11
1977	0.00	0.00	0.41	0.21	0.68	1.55	5.40	12.63	3.96	2.69	0.08
1978	0.00	0.00	1.06	1.37	0.17	0.50	2.73	8.42	3.40	1.87	0.14
1979	0.04	0.00	0.88	0.00	0.35	0.32	2.75	2.00	0.30	0.66	0.16
1980	0.36	0.00	0.00	0.68	1.39	1.00	5.27	7.88	2.61	2.05	0.15
1981	0.40	0.00	1.00	0.21	0.10	1.64	7.00	11.84	2.43	2.60	0.31
1982	0.00	0.00	0.67	0.05	0.00	0.14	0.87	2.64	2.83	0.79	0.10
1983	0.08	0.08	0.28	0.16	0.50	0.57	1.64	7.32	1.87	1.44	0.05
1984	0.00	0.00	0.22	0.80	0.03	0.00	1.13	2.40	1.57	0.66	0.08
1985	0.00	0.00	1.44	0.00	0.10	0.00	1.27	6.24	3.30	1.37	0.07
1986	0.00	0.00	0.00	0.37	0.03	0.14	1.73	8.16	2.09	1.42	0.12
1987	0.00	0.00	0.33	0.47	0.00	0.74	3.93	14.52	4.17	2.70	0.12
1988	0.00	0.00	0.44	0.94	0.00	0.00	4.87	8.46	4.13	1.96	0.17
1989	0.04	0.00	0.33	1.06	0.10	0.70	6.07	7.67	3.17	1.91	0.22
1990	0.00	0.00	1.00	0.72	0.13	1.04	2.93	6.25	2.21	1.48	0.19
1991	0.08	0.00	0.47	0.72	0.13	0.52	3.13	5.54	2.33	1.34	0.07
1992	0.12	0.00	0.22	1.50	0.07	0.96	2.43	2.83	2.71	1.07	0.14
1993	0.00	0.00	0.37	0.50	0.03	0.78	5.07	2.13	1.61	0.96	0.03
1994	0.08	0.00	0.00	0.65	0.00	0.87	9.19	3.21	3.04	1.58	0.15
1995	0.08	0.00	0.63	0.17	0.06	0.86	2.53	5.54	3.22	1.37	0.06
1996	0.08	0.00	0.21	0.28	0.09	0.71	2.73	0.88	0.65	0.51	0.09
1997	0.00	0.00	0.00	0.00	0.07	1.24	4.27	2.25	0.50	0.77	0.10
1998	0.00	0.00	0.00	0.00	0.07	1.48	1.20	2.30	1.81	0.72	0.09
1999	0.00	0.00	0.05	0.00	0.00	0.13	1.07	2.50	1.50	0.57	0.06
2000	0.00	0.00	0.00	0.20	0.47	0.17	4.40	0.83	0.41	0.57	0.03
2001	0.00	0.00	0.00	0.00	0.09	0.76	1.31	0.50	0.32	0.29	0.05
2002	0.00	0.00	0.00	0.70	0.03	0.27	1.06	0.88	0.96	0.39	0.03
2003	0.00	0.00	0.00	0.00	0.22	0.14	3.27	3.92	1.36	0.89	0.03
2004	0.00	0.00	0.50	0.05	0.19	0.55	2.19	2.64	3.19	0.93	0.03
2005	0.00	0.00	0.00	0.09	0.53	0.00	1.71	2.52	1.64	0.69	0.02
2006	0.00	0.00	0.00	0.32	0.03	0.52	1.65	2.16	3.22	0.82	0.05
2007	0.04	0.00	0.00	0.78	0.00	1.40	0.63	1.52	3.30	0.81	0.02
2008	0.00	0.00	0.00	0.13	0.00	0.00	2.00	1.04	1.26	0.45	0.00
2009	0.58	0.00	0.00	0.67	0.00	0.18	1.22	2.24	1.67	0.72	0.01
2010	0.00	0.00	0.56	0.30	0.00	0.05	0.44	0.50	1.32	0.33	0.00
2011	0.00	0.00	0.00	0.00	0.00	0.35	0.07	1.28	0.22	0.22	0.02
2012	0.00	0.00	0.00	0.00	0.07	0.00	1.75	1.68	0.13	0.36	0.01
Statistics:											
10 Year Avg.	0.06	0.00	0.11	0.23	0.10	0.32	1.49	1.95	1.73	0.62	0.02
Long-term Avg.	0.07	0.01	0.28	0.46	0.25	0.82	3.61	4.94	3.10	1.39	0.15
Percent Change from:											
2011						-100.0		31.3	-42.4	62.3	-73.7
10 Year Avg.					-37.1	-100.0	17.3	-13.8	-92.8	-42.5	-73.0
Long-term Avg.					-74.4	-100.0	-51.5	-66.0	-96.0	-74.4	-96.7

Table 5.4 Mean number of gray partridge counted/30-mile route on the August roadside survey, regionally and statewide, (1963-present).

YEAR	NORTH WEST	NORTH CENTRAL	NORTH EAST	WEST CENTRAL	CENTRAL	EAST CENTRAL	SOUTH WEST	SOUTH CENTRAL	SOUTH EAST	STATEWIDE
1962	6.27	0.82	0.00	1.00	0.08	0.00	0.00		0.00	1.13
1963	4.67	2.71	0.00	0.69	0.00	0.00	0.00	0.00	0.00	0.92
1964	4.93	2.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85
1965	2.38	1.52	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.48
1966	2.70	4.96	0.00	0.00	0.76	0.00	0.00	2.05	0.00	1.30
1967	3.33	1.13	0.00	1.11	0.20	0.00	0.00	0.00	0.00	0.66
1968	4.13	1.30	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.68
1969	1.25	1.14	0.00	0.17	0.32	0.00	0.00	0.00	0.00	0.38
1970	8.43	4.00	0.00	0.00	0.75	0.00	0.00	0.00	0.00	1.66
1971	7.09	3.55	0.00	0.29	0.00	0.00	0.00	0.00	0.00	1.44
1972	8.92	5.44	0.00	0.47	0.61	0.00	0.00	0.00	0.20	1.92
1973	6.57	7.08	0.22	0.32	0.52	0.00	0.00	0.00	0.00	1.87
1974	9.00	4.79	0.00	0.30	0.33	0.00	0.00	0.00	0.00	1.82
1975	8.50	6.73	0.00	0.00	0.19	0.00	0.00	0.00	0.00	1.98
1976	9.50	7.20	0.00	0.84	0.23	0.00	0.00	0.00	0.00	2.14
1977	22.04	13.88	0.00	1.58	0.55	0.00	0.00	0.00	0.00	4.70
1978	17.23	7.68	0.11	1.42	2.43	0.00	0.00	0.00	0.00	3.73
1979	20.28	19.32	0.18	1.58	2.90	0.77	0.00	0.00	0.00	5.59
1980	35.04	28.08	0.11	3.00	4.03	0.82	0.00	0.00	0.00	8.81
1981	31.44	23.60	1.78	5.00	4.19	0.32	0.00	0.00	0.00	8.08
1982	18.48	10.16	0.94	3.37	1.87	0.00	0.00	0.00	0.00	4.21
1983	8.04	8.88	0.72	1.84	1.87	0.65	0.00	0.00	0.00	2.65
1984	14.16	13.24	2.11	1.05	3.03	1.05	0.00	0.00	0.00	4.22
1985	26.84	25.23	8.06	10.68	9.26	1.18	0.00	0.00	0.00	9.75
1986	29.48	21.04	10.00	5.79	11.13	2.41	0.13	0.00	0.00	9.62
1987	36.88	35.08	10.56	17.00	20.32	3.17	0.00	0.00	0.61	14.93
1988	42.84	48.65	15.61	17.83	25.07	4.48	0.20	0.38	1.39	19.00
1989	36.54	31.82	14.39	12.06	37.48	0.96	2.07	0.38	0.70	17.27
1990	18.40	20.12	16.68	5.89	6.93	5.52	1.00	0.38	0.88	8.75
1991	13.88	7.52	4.16	3.17	4.23	4.00	0.87	0.54	0.58	4.59
1992	5.15	4.76	6.67	2.61	3.77	4.17	0.07	1.46	2.05	3.58
1993	1.33	1.39	0.84	2.00	1.19	0.17	0.00	0.13	0.17	0.85
1994	7.92	14.48	4.47	10.41	8.29	5.39	0.13	0.29	0.35	6.17
1995	3.72	4.86	4.11	1.28	2.52	3.18	0.00	0.29	0.78	2.47
1996	4.42	6.64	3.00	2.61	1.81	1.24	0.00	0.00	0.00	2.37
1997	9.00	7.33	6.47	3.16	10.77	3.95	0.00	0.00	0.36	5.10
1998	23.00	13.96	9.17	3.58	3.36	1.24	0.07	0.00	0.05	6.42
1999	11.41	2.75	2.11	1.84	3.68	0.52	0.00	0.00	0.09	2.83
2000	6.54	4.75	0.90	2.05	4.00	1.74	0.00	0.00	0.00	2.53
2001	3.23	1.30	3.44	2.75	3.94	1.33	0.13	0.00	0.00	1.90
2002	7.04	2.04	2.94	4.00	5.88	1.23	0.00	0.00	0.00	2.82
2003	6.77	3.04	3.20	1.50	7.00	0.13	0.00	0.00	0.00	2.76
2004	7.77	2.30	1.90	0.86	3.25	1.00	0.00	0.04	0.00	2.12
2005	9.31	3.59	1.80	2.68	3.53	1.83	0.00	0.00	0.36	2.79
2006	2.50	4.96	2.10	2.14	3.53	0.86	0.00	0.00	0.39	2.01
2007	2.19	2.93	2.30	1.96	2.90	0.85	0.00	0.28	0.00	1.62
2008	2.39	4.11	0.00	1.09	0.40	0.20	0.00	0.12	0.00	1.03
2009	2.92	1.39	2.29	1.57	1.83	0.00	0.00	0.00	0.21	1.17
2010	1.15	1.69	1.83	0.83	1.40	1.26	0.00	0.00	0.00	0.93
2011	2.46	4.19	0.47	0.24	1.16	0.61	0.00	0.00	0.00	1.15
2012	2.50	3.56	1.33	0.71	3.45	0.05	0.06	0.00	0.00	1.47
Statistics:										
10 Year Avg.	4.00	3.17	1.72	1.36	2.85	0.68	0.01	0.04	0.10	1.71
Long-term Avg.	11.41	9.11	2.88	2.87	4.25	1.10	0.09	0.13	0.18	3.91
Percent Change from:										
2011	1.5	-15.0	183.0	200.0	198.6	-92.6				27.6
10 Year Avg.	-37.4	12.0	-22.6	-47.4	21.3	-93.4	900.0	-100.0	-100.0	-13.7
Long-term Avg.	-78.1	-61.0	-53.7	-75.1	-18.8	-95.9	-31.9	-100.0	-100.0	-62.3

Table 5.5 Mean number of cottontail rabbits counted/30-mile route on the August roadside survey, regionally and statewide, (1962-present).

YEAR	NORTH WEST	NORTH CENTRAL	NORTH EAST	WEST CENTRAL	CENTRAL	EAST CENTRAL	SOUTH WEST	SOUTH CENTRAL	SOUTH EAST	STATEWIDE
1962	3.6	1.5	4.3	10.1	5.3	6.2	6.0		5.6	5.2
1963	8.9	4.8	4.2	10.8	5.0	6.9	8.0	9.9	12.7	7.9
1964	2.3	2.3	1.7	11.1	6.6	3.1	10.2	19.4	13.7	7.9
1965	3.1	3.0	3.7	7.9	2.8	4.0	16.2	24.3	11.2	8.1
1966	2.0	3.2	6.5	9.7	5.9	5.0	30.2	31.7	9.5	10.3
1967	2.8	2.4	4.4	6.9	6.1	4.0	18.8	16.3	10.9	7.5
1968	1.9	3.3	4.0	6.9	5.3	5.7	17.7	17.5	8.5	7.4
1969	2.0	2.2	5.0	3.4	2.5	5.6	16.6	18.0	6.8	6.3
1970	1.4	2.0	4.3	2.7	1.7	3.6	12.5	11.3	4.7	4.4
1971	1.9	1.4	3.9	3.7	2.8	4.2	14.8	16.5	5.6	5.4
1972	2.8	1.7	2.7	3.9	2.3	6.4	11.7	14.8	4.7	5.5
1973	2.2	2.6	3.7	3.9	4.2	6.0	13.8	14.3	6.1	5.8
1974	2.1	1.9	4.4	3.6	2.0	3.9	5.8	8.4	6.0	4.1
1975	1.3	1.2	2.5	2.6	1.4	3.6	5.1	7.0	5.2	3.2
1976	1.3	1.6	5.9	7.3	4.2	5.5	9.3	16.4	8.9	6.4
1977	1.4	1.2	4.0	2.2	1.9	5.1	7.9	11.7	5.4	4.3
1978	3.8	2.0	6.9	4.7	3.7	5.5	12.7	14.0	5.2	6.2
1979	3.2	1.7	3.3	4.1	2.7	2.3	5.6	8.2	2.5	3.6
1980	2.3	3.0	2.1	4.2	4.2	1.8	5.5	9.8	4.9	4.2
1981	3.4	4.6	6.4	5.2	3.2	7.4	11.1	21.1	9.0	7.8
1982	2.4	2.3	2.7	4.4	2.5	4.9	7.7	19.5	11.7	6.4
1983	3.1	2.5	6.4	4.2	3.1	5.0	7.2	17.6	12.7	6.8
1984	2.0	1.4	3.0	4.2	2.6	4.0	3.5	14.7	14.0	5.6
1985	3.2	2.7	3.9	3.8	4.4	5.5	7.1	22.9	12.0	7.4
1986	3.0	2.6	4.6	4.3	3.8	3.8	9.7	25.2	12.7	7.7
1987	4.1	3.5	3.2	6.3	4.4	4.3	8.1	34.4	7.7	8.6
1988	3.1	1.8	2.0	4.8	2.6	2.5	4.6	12.8	6.7	4.5
1989	2.4	2.4	4.6	5.2	2.9	4.3	6.3	13.5	8.5	5.4
1990	2.7	3.9	7.0	7.7	5.5	7.3	9.2	26.0	14.7	9.2
1991	2.4	1.8	3.4	5.1	2.5	3.3	7.0	16.3	9.1	5.5
1992	2.6	3.8	4.0	4.8	4.1	3.6	7.1	13.7	12.4	6.0
1993	1.3	1.8	3.9	6.5	2.2	5.0	6.7	15.4	10.1	5.5
1994	2.2	1.9	5.4	5.4	3.3	7.4	8.9	14.4	10.4	6.3
1995	3.2	4.0	3.8	5.5	4.8	6.5	13.0	15.7	9.5	7.0
1996	3.6	3.7	5.8	5.2	3.7	6.3	6.4	13.8	8.5	6.2
1997	2.1	2.4	5.2	2.9	3.4	6.2	6.0	11.8	5.1	4.9
1998	2.0	2.7	5.1	3.1	3.7	6.3	5.8	10.4	7.5	5.1
1999	4.1	2.3	5.1	5.0	4.7	9.1	7.9	10.6	6.0	5.9
2000	2.4	2.0	4.9	4.2	4.9	6.9	7.4	19.3	7.2	6.4
2001	1.6	1.6	1.3	2.1	3.0	3.5	5.3	12.0	4.1	3.8
2002	2.7	2.2	2.7	3.7	4.8	6.5	3.8	11.2	9.3	5.3
2003	5.0	3.9	5.7	6.9	8.3	8.0	9.1	21.4	11.0	8.8
2004	3.0	3.3	5.7	4.2	3.9	6.1	8.7	24.9	14.6	8.1
2005	4.7	2.9	5.7	5.0	4.6	3.7	12.6	12.1	7.0	6.2
2006	3.8	2.8	5.2	5.6	4.3	5.8	8.4	14.9	7.8	6.4
2007	1.7	2.6	4.2	3.6	2.8	6.1	5.7	6.1	8.0	4.3
2008	4.0	2.8	2.6	6.1	5.1	3.6	8.8	16.9	7.0	6.3
2009	2.2	1.3	3.7	4.7	4.0	4.5	10.3	9.6	6.1	5.0
2010	2.9	0.8	2.9	2.7	1.6	2.7	4.3	5.1	5.5	3.1
2011	1.1	1.0	2.8	2.5	2.4	2.0	1.9	4.3	1.7	2.2
2012	2.0	1.0	1.9	1.2	1.8	2.0	1.9	3.0	3.3	2.0
Statistics:										
10 Year Avg.	3.0	2.2	4.0	4.3	3.9	4.4	7.2	11.8	7.2	5.2
Long-term Avg.	2.7	2.4	4.2	4.9	3.7	4.9	9.1	15.2	8.3	6.0
Percent Change from:										
2011	82.2	0.0	-31.2	-51.0	-22.6	2.2	0.4	-29.0	96.5	-6.0
10 Year Avg.	-35.4	-57.0	-51.9	-70.9	-52.6	-55.0	-73.8	-74.3	-53.8	-61.3
Long-term Avg.	-28.2	-60.5	-53.4	-74.8	-50.1	-59.4	-79.3	-80.0	-59.7	-66.1

Table 5.6 Small game harvest estimates from the Iowa small-game survey (1963-present). Resident and NR hunter harvests combined.

YEAR	PHEASANT	QUAIL	COTTONTAIL	JACKRABBIT	SQUIRREL	HUNS	MOURNING DOVE
1958*	1,548,564						
1959*	1,070,285						
1963	1,935,000	327,977	2,066,472	75,015	1,440,576	8,000	
1964	1,737,400	291,030	2,260,090	97,785	1,111,290	7,000	
1965	1,117,500	513,760	1,602,060	133,000	1,236,400	11,500	
1966	1,449,400	1,051,630	2,180,525	91,690	1,370,250	12,000	
1967	1,212,200	736,520	1,548,035	55,660	1,196,810	11,300	
1968	1,393,900	777,685	1,761,370	62,405	1,014,940	21,600	
1969	1,642,899	1,144,700	1,722,280	98,930	1,164,030	20,900	
1970	1,788,500	1,178,685	1,725,535	71,705	1,115,410	28,300	
1971	1,817,000	1,037,957	1,305,083	41,468	1,172,742	31,100	
1972	1,396,900	657,300	1,148,100	31,200	1,048,000	16,800	
1973	1,905,086	791,242	1,424,927	30,863	1,105,271	45,284	
1974	1,672,476	727,324	1,271,577	40,027	1,119,048	39,976	
1975	1,230,095	543,971	996,227	19,064	1,046,559	26,436	
1976	1,425,500	1,080,500	1,136,300	20,700	1,377,500	54,800	
1977	1,357,862	849,183	1,322,263	19,975	1,283,043	48,991	
1978	1,428,708	660,625	856,999	26,077	815,562	108,473	
1979	1,200,709	312,410	461,285	13,713	696,363	55,414	
1980	1,429,617	524,450	588,363	7,932	844,999	70,764	
1981	1,447,969	563,569	1,134,781	22,860	949,681	69,698	
1982	972,556	302,648	712,227	5,237	759,438	52,782	
1983	1,047,027	270,690	720,012	8,845	669,490	91,035	
1984	724,192	190,708	636,209	6,376	529,316	33,306	
1985	852,716	189,236	717,631	2,108	673,665	62,931	
1986	855,894	339,000	472,585	6,082	506,769	60,018	
1987	1,412,082	397,633	690,091	8,830	532,001	109,061	
1988	1,139,599	289,592	424,561	3,907	510,065	104,094	
1989	1,441,990	426,302	435,791	3,025	583,183	118,282	
1990	1,407,002	321,493	608,805	4,463	466,140	147,922	
1991	1,138,463	231,818	437,144	3,171	407,172	45,541	
1992	925,123	179,825	311,607	2,113	328,644	37,328	
1993	1,226,010	201,461	334,667	3,212	439,477	24,577	
1994	1,245,580	178,589	288,982	262	395,232	22,331	
1995	1,443,010	220,999	335,862	6,280	377,714	6,677	
1996	1,367,060	81,039	331,047	2,666	302,908	36,358	
1997	1,340,050	181,025	340,661	5,063	265,874	38,045	
1998	1,237,980	100,594	255,149	10,008	319,081	25,613	
1999[a]	899,174	110,128	237,409	8,777	242,224	20,200	
2000[b]	1,001,867	140,828	350,739	1,626	217,116	19,258	
2001	470,116	32,226	196,483	3,840	248,833	5,814	
2002	729,460	63,872	167,284	1,637	152,825	5,130	
2003	1,080,466	114,067	243,699	738	202,729	8,204	
2004	756,184	68,256	259,327	151	233,530	12,535	
2005	806,601	40,675	210,591	671	132,195	14,674	
2006	748,025	75,276	155,892	999	165,255	10,724	
2007	631,638	54,444	131,250	1,262	169,478	4,885	
2008	383,083	13,391	122,296	57	120,998	1,420	
2009	271,126	12,136	127,663	608	169,041	4,643	
2010	238,208	11,620	74,044	0	119,590	1,057	
2011	108,905	4,539	51,815	Closed	108,783	1,046	57,285
2012	158,099	20,474	70,003		158,615	611	94,864
Statistics:							
10 Year Avg.	518,234	41,488	144,658		158,021	5,980	
Long-term Avg.	1,139,747	372,702	739,276	22,127	632,317	36,289	76,075
Percent Change from:							
2011	45.2	351.1	35.1		45.8	-41.6	65.6
10 Year Avg.	-69.5	-50.7	-51.6		0.4	-89.8	
Long-term Avg.	-86.1	-94.5	-90.5		-74.9	-98.3	24.7

[a] Small Game Harvest Survey changed from a single to a double mailing. Harvest estimates from 1999-present are more conservative than pre-1999 estimates.

[b] Survey methodology changed account for unrealistic harvest (e.g. reports of 1 bird harvested for 60 days effort).

* Nomsen R.C. 1961. Results of the 1958 and 1959 Pheasant Hunter Survey. Ia Acad. Sci. 68:281-283.

Table 5.7 Estimated hunter and harvest numbers for pheasant and quail by residency status from the Iowa small-game survey (1987-present).

	Pheasant				Quail			
	Resident		Non Resident		Resident		Non Resident	
YEAR	Hunters	Harvest	Hunters	Harvest	Hunters	Harvest	Hunters	Harvest
1987	178,203	1,129,395	33,915	251,613	70,026	181,378	13,727	64,760
1988	170,323	902,226	33,682	237,373	59,230	212,646	13,792	76,946
1989	173,017	1,122,951	38,569	319,039	69,591	381,321	10,380	44,981
1990	171,016	1,047,529	39,829	359,473	61,219	269,896	11,667	51,597
1991	161,741	852,158	40,578	286,305	49,713	184,195	11,271	47,623
1992	139,681	677,670	36,749	247,453	47,641	155,919	8,646	23,906
1993	138,619	999,149	27,642	226,857	43,027	175,793	6,318	25,667
1994	147,841	876,365	41,824	369,216	41,504	156,413	8,754	22,176
1995	155,308	1,118,638	44,995	324,368	39,653	193,544	11,185	27,454
1996	155,889	1,059,385	49,704	307,675	33,996	62,438	10,978	18,601
1997[a]	154,855	1,037,620	50,349	302,432	24,927	134,418	10,546	46,607
1998	141,838	936,181	42,748	301,797	26,393	83,067	5,985	17,527
1999[b]	142,521	684,596	39,152	214,578	32,306	86,058	8,811	24,070
2000	134,873	781,143	32,648	220,724	33,114	114,110	6,843	26,718
2001[c]	99,125	352,469	23,781	117,620	20,459	24,812	4,132	7,414
2002	97,842	548,413	29,757	181,047	16,194	43,492	4,693	20,380
2003	108,819	849,898	33,414	230,568	19,937	99,971	4,958	14,096
2004	99,753	586,632	31,009	169,552	17,139	57,486	5,197	10,770
2005	107,255	641,957	28,937	164,644	15,277	33,714	3,301	6,961
2006	91,642	558,369	27,038	189,656	17,787	49,783	4,769	25,493
2007	85,803	481,754	23,426	149,884	14,227	42,799	4,007	11,645
2008[d]	69,640	299,875	16,231	83,208	12,114	10,716	1,791	2,675
2009	60,708	217,816	13,309	53,310	8,237	11,098	1,942	1,038
2010	51,258	197,266	8,800	40,942	9,150	9,572	1,454	2,048
2011	39,515	75,897	6,460	33,008	8,574	3,664	862	875
2012	41,437	137,215	5,743	20,884	7,947	19,420	822	1,054
Statistics:								
10 Year Avg.	75,583	404,668	19,437	113,566	13,039	33,822	2,910	7,666
Long-term Avg.	119,943	698,945	30,780	207,816	30,745	107,605	6,801	23,965
Percent Change from:								
2011	4.9	80.8	-11.1	-36.7	-7.3	430.0	-4.6	20.5
10 Year Avg.	-45.2	-66.1	-70.5	-81.6	-39.1	-42.6	-71.8	-86.3
Long-term Avg.	-65.5	-80.4	-81.3	-90.0	-74.2	-82.0	-87.9	-95.6

[a] Iowa lost 800,000 acres of whole field enrollment CRP.

[b] Small Game Harvest Survey changed from a single to a double mailing. Hunter estimates from 1999-present are more conservative than pre-1999 estimates.

[c] Fourth worst winter in Iowa records for total snowfall.

[d] Tenth snowiest winter and wettest Jan-June in state history.

Table 5.8 Sales of hunting-related licenses and stamps in Iowa (1942-present).

	RESIDENT					NON-RESIDENT					
	FURHARVESTER			RESIDENT	LIFETIME	HUNTING		TOTAL	HABITAT	IA DUCK	HUNT
YEAR[a]	over 16[b]	under 16	TOTAL[c]	HUNT[d]	over 65	over 18	under 18	LICENSE[e]	STAMP[f]	STAMP[g]	PRESERVE[h]
1942				226,046				447			
1943				193,270				612			
1944				211,657				1,163			
1945				245,609				998			
1946				326,128				1,646			
1947				273,242				632			
1948				332,019				1,727			
1949				349,734				2,256			
1950				338,111				2,393			
1951				329,320				2,371			
1952				340,935				2,391			
1953				343,982				3,115			
1954				346,435				3,203			
1955				369,493				3,936			
1956				364,985				4,544			
1957				339,389				4,422			
1958				355,658				5,521			
1959				320,246				4,535			
1960				313,851				5,352			
1961				301,809				5,448			
1962				288,087				5,470			
1963				307,475				7,531			
1964				301,964				8,370			
1965				275,640				6,505			
1966				292,745				9,638			
1967				295,276				11,244			
1968				309,424				12,223			
1969				303,602				17,326			
1970				322,509				21,898			
1971				328,542				30,264			
1972				277,317				28,559		70,446	
1973				291,755				34,497		67,323	
1974				318,930				42,224		70,797	
1975				302,436				36,382		70,814	
1976				306,489				41,849		66,120	
1977				296,940				39,032		69,023	
1978				295,696				32,848		67,041	
1979	17,602	4,813	22,415	257,676				27,302	279,621	52,865	768
1980	19,366	5,529	24,895	266,655				30,793	296,667	50,202	822
1981	19,116	4,990	24,106	266,053				31,379	297,297	45,751	742
1982	17,505	4,248	21,753	245,969				24,002	269,290	44,391	751
1983	14,964	3,699	18,663	237,851				23,206	261,340	42,981	766
1984	14,537	3,329	17,866	221,519				21,927	243,154	44,445	696
1985	25,156	3,519	28,675	208,444				22,977	233,779	37,681	729
1986	23,709	3,064	26,773	205,356				27,254	236,219	40,157	882
1987	28,923	3,338	32,261	220,674				35,676	259,350	43,357	1,112
1988	24,105	2,380	26,485	218,588				35,023	257,702	34,799	1,696
1989	18,411	1,530	19,941	226,124				40,197	271,342	32,920	1,499
1990	13,853	973	14,826	219,636				41,500	263,530	31,468	1,786

Table 5.8 Continued.

	RESIDENT					NON-RESIDENT					
	FURHARVESTER			RESIDENT	LIFETIME	HUNTING		TOTAL	HABITAT	IA DUCK	HUNT
YEAR[a]	over 16[b]	under 16	TOTAL[c]	HUNT[d]	over 65	over 18	under 18	LICENSE[e]	STAMP[f]	STAMP[g]	PRESERVE[h]
1991	14,208	719	14,927	217,200				45,792	266,845	32,537	1,454
1992	14,272	793	15,065	203,508				39,211	247,673	34,304	1,810
1993	14,672	829	15,501	197,966				29,231	232,298	31,741	2,137
1994	15,811	952	16,763	211,289				45,610	260,815	33,232	1,870
1995	15,343	903	16,246	210,727				48,028	263,531	34,903	2,467
1996	17,237	1,021	18,258	209,663				53,058	265,653	43,060	2,317
1997	18,330	1,066	19,396	211,530				52,730	269,443	38,275	2,516
1998	18,325	1,078	19,403	208,790				50,511	266,519	40,349	3,107
1999*	***15,804***	***1,004***	***16,808***	***206,210***	***2,885***	***42,379***	***2,086***	***44,465***	***253,943***	***42,588***	***2,772***
2000	12,793	1,936	14,729	200,995	1,642	39,067	1,901	40,968	245,351	40,913	2,898
2001	14,665	658	15,323	194,051	1,515	26,748	1,090	27,838	237,407	40,378	2,963
2002	14,235	644	14,879	189,138	2,339	36,728	1,532	38,260	229,829	37,574	3,282
2003	13,753	651	14,404	193,279	1,772	43,145	1,951	45,096	240,527	35,746	3,173
2004	13,906	701	14,607	190,154	1,786	41,159	1,847	43,006	235,336	34,611	3,254
2005	12,711	665	13,376	189,813	1,886	40,159	1,801	41,960	233,416	31,666	3,165
2006	13,796	746	14,542	188,628	1,973	39,038	1,815	40,853	231,284	31,982	3,370
2007	14,445	834	15,279	184,257	1,970	35,267	1,604	36,871	222,559	31,992	3,010
2008	14,673	850	15,523	177,723	2,074	28,427	1,167	29,594	208,461	30,560	2,665
2009	13,376	722	14,098	172,230	2,257	24,352	1,026	25,378	198,880	29,644	2,562
2010	14,162	871	15,033	164,380	2,016	19,992	773	20,765	185,598	28,263	2,254
2011	15,908	1,020	16,928	160,256	2,109	23,657	714	24,371	185,559	27,930	2,460
2012	17,970	1,215	19,185	161,642	2,350	23,766	793	24,559	187,698	26,420	2,270
Statistics:											
10 Year Avg.	14,470	828	15,298	178,236	2,019	31,896	1,349	33,245	212,932	30,881	2,818
Long-term Avg.	16,695	1,803	18,498	258,799	2,041	33,135	1,436	23,267	245,233	42,469	2,060
Percent Change from:											
2011	13.0	19.1	13.3	0.9	11.4	0.5	11.1	0.8	1.2	-5.4	-7.7
10 Year Avg.	24.2	46.8	25.4	-9.3	16.4	-25.5	-41.2	-26.1	-11.9	-14.4	-19.5
Long-term Avg.	7.6	-32.6	3.7	-37.5	15.1	-28.3	-44.8	5.6	-23.5	-37.8	10.2

[a] Change to ELSI electronic licensing system in 1999*. Resident hunting, combination, fur/fish/game licenses and furharvester were license types issued prior to ELSI implementation.

[b] Furharvester (over 16) sales is the sum of discontinued fur(over 16) and fur/fish/game licenses, from 1979-99.

[c] Total furharvester sales is the sum of furharvester over and under 16 columns. Total does not include NR sales.

[d] Total resident licenses is sum of resident hunt, combination, and fur/fish/game, until ELSI system implementation in 1999.

[e] For comparisons to previous years total NR licenses is sum of NR over and under 18 sales after 1999 ELSI implementation.

[fgh] Numbers represent combined resident and non-resident sales.

Table 5.9 Estimated hunter numbers (resident & NR combined) from the Iowa small-game survey.

YEAR	PHEASANT	QUAIL	COTTONTAIL	JACK RABBIT	SQUIRREL	HUNS	MOURNING DOVE
1958*	267,455						
1959*	238,903						
1963	277,400	47,028	169,994	30,494	150,932		
1964	271,285	46,535	179,585	31,815	136,415		
1965	225,735	46,450	138,379	26,080	123,640		
1966	240,400	63,785	154,647	20,355	130,500		
1967	244,300	62,485	150,050	20,615	138,520		
1968	247,100	70,367	147,380	20,131	120,790		
1969	259,100	81,100	159,000	24,810	133,600		
1970	283,400	87,665	167,190	26,460	136,150		
1971	301,150	80,250	134,470	16,326	118,059		
1972	230,000	63,900	137,000	12,800	105,000	6,400	
1973	307,974	106,150	201,560	23,209	159,473	22,374	
1974	307,200	101,101	192,100		159,000		
1975	280,019	102,668	175,850				
1976	289,592	125,575	173,125	11,600	143,474	22,054	
1977	279,689	103,776	170,074	11,302	141,596	17,691	
1978	270,413	101,916	142,809	14,268	120,503	34,329	
1979	241,972	73,461	114,642	10,029	111,434	23,465	
1980	252,440	86,816	119,901	8,526	111,425	27,554	
1981	254,803	97,430	150,881	11,106	117,942	28,731	
1982	214,263	68,479	118,994	4,862	105,262	21,532	
1983	203,014	63,060	118,535	7,331	98,553	25,366	
1984	176,312	58,630	102,993	5,543	86,380	21,179	
1985	175,225	54,427	107,500	6,568	88,849	25,956	
1986	184,759	63,985	92,727	5,193	84,082	30,822	
1987	212,118	83,754	103,199	7,298	77,819	40,878	
1988	204,659	74,584	84,529	4,376	74,783	44,154	
1989	211,586	79,971	89,054	5,634	80,937	48,785	
1990	210,845	72,886	87,437	4,679	70,539	49,220	
1991	202,319	62,684	83,200	4,001	63,601	25,165	
1992	176,430	56,287	66,967	5,802	60,443	22,949	
1993	166,260	49,345	65,704	1,547	62,175	14,920	
1994	189,664	50,258	68,840	1,239	57,381	18,294	
1995	200,302	50,839	68,499	4,361	57,495	15,954	
1996	205,592	44,974	75,870	2,623	56,382	21,914	
1997	205,203	35,473	51,785	2,872	43,632	12,330	
1998	184,585	32,378	54,588	1,604	53,859	13,502	
1999[a]	181,673	41,117	50,254	2,456	46,994	11,390	
2000	167,521	39,957	46,311	1,572	35,395	6,043	
2001	122,906	24,591	36,125	2,933	36,760	5,757	
2002	127,599	20,887	27,945	1,692	25,482	4,417	
2003	142,233	24,895	31,600	326	27,863	4,054	
2004	130,583	22,336	32,195	600	29,302	4,537	
2005	136,192	18,578	40,225	1,870	25,943	7,147	
2006	118,680	22,556	34,292	1,989	27,746	5,553	
2007	109,229	18,234	31,106	1,502	23,160	3,819	
2008	85,871	13,095	27,191	1,405	22,857	2,996	
2009	74,017	10,179	25,840	1,894	24,586	3,705	
2010	60,058	10,604	22,005	541	23,440	1,229	
2011	45,975	9,436	17,197	Closed	20,420	1,782	8,780
2012	47,180	8,769	18,247		21,698	1,481	9,328
Statistics:							
10 Year Avg.	95,002	15,868	27,990	1,266	24,702	3,630	9,054
Long-term Avg.	200,830	56,714	97,192	9,005	81,067	17,934	9,054
Percent Change from:							
2011	2.6	-7.1	6.1		6.3	-16.9	6.2
10 Year Avg.	-50.3	-44.7	-34.8		-12.2	-59.2	3.0
Long-term Avg.	-76.5	-84.5	-81.2		-73.2	-91.7	3.0

[a] Small Game Harvest Survey changed from a single to a double mailing. Hunter estimates from 1999-present are more conservative than pre-1999 estimates.

* Nomsen R.C. 1961. Results of the 1958 and 1959 Pheasant Hunter Survey. Ia Acad. Sci. 68:281-283.

Table 5.10 Iowa's ring-necked pheasant hunting seasons.

YEAR	DATES REGULAR / YOUTH	SEASON LENGTH	SHOOTING HOURS	LIMIT - BAG/POSS REGULAR	LIMIT - BAG/POSS YOUTH	# COUNTIES OPEN
1946	28 OCT-17 NOV	21	1000-1600	3/6		59
1947	11 NOV-20 NOV	10	1200-1600	2/2		64
1948	11 NOV-30 NOV	20	1200-1600	2/4		68
	11 NOV- 5 DEC	25	1200-1630	2/4		68
1949	11 NOV-17 NOV	7	1200-1630	2/4		11
1950	11 NOV- 5 DEC	25	1200-1630	3/3		70
	11 NOV-20 NOV	10	1200-1630	3/3		13
1951	11 NOV- 5 DEC	25	1200-1630	3/3		65
	11 NOV-22 NOV	12	1200-1630	3/3		27
1952	18 NOV-12 DEC	25	1200-1630	3/3		65
	18 NOV-29 NOV	12	1200-1630	3/3		27
1953	11 NOV- 5 DEC	25	1200-1630	3/3		69
	11 NOV-22 NOV	12	1200-1630	3/3		23
1954	11 NOV- 5 DEC	25	1200-1630	3/3		70
	11 NOV-22 NOV	12	1200-1630	3/3		22
1955	12 NOV- 5 DEC	24	1200-1630	3/3		70
	12 NOV-24 NOV	13	1200-1630	3/3		22
1956	10 NOV- 3 DEC	24	1200-1630	3/3		70
	10 NOV-22 NOV	13	1200-1630	3/3		22
1957	9 NOV- 2 DEC	24	1200-1630	3/3		70
	9 NOV-21 NOV	13	1200-1630	3/3		22
1958	8 NOV- 1 DEC	24	1000-1630	3/6		70
	8 NOV-23 NOV	16	1000-1630	3/6		22
1959	14 NOV- 7 DEC	24	0900-1630	3/6		70
	14 NOV-29 NOV	16	0900-1630	3/6		22
1960	5 NOV-28 NOV	24	0900-1630	3/6		92
1961	11 NOV-15 DEC	35	0900-1630	3/6		92
1962	10 NOV-14 DEC	35	0900-1630	3/6		92
1963-64	9 NOV- 1 JAN	54	0830-1700	3/9		92
1964-65	7 NOV- 3 JAN	58	0830-1700	3/9		92
1965-66	13 NOV- 2 JAN	51	0830-1600	2/6		92
1966-67	12 NOV- 2 JAN	52	0800-1630	3/6		92
1967-68	11 NOV- 1 JAN	52	0800-1630	3/6		94
1968-69	9 NOV-31 DEC	53	0800-1630	3/6		94
1969-70	8 NOV-31 DEC	54	0800-1630	3/6		94
1970-71	14 NOV- 3 JAN	51	0800-1630	3/6		94
1971-72	13 NOV- 2 JAN	51	0800-1630	3/6		96
1972-73	11 NOV- 1 JAN	52	0800-1630	3/12		96
1973-74	10 NOV- 6 JAN	58	0800-1630	3/12		96
1974-75	9 NOV- 5 JAN	58	SUNRISE-SUNSET	3/12		97
1975-76	8 NOV- 4 JAN	58	0800-1630	3/6		97
1976-77	6 NOV- 2 JAN	58	0800-1630	3/6		STATEWIDE
1977-78	5 NOV- 1 JAN	58	0800-1630	3/6		STATEWIDE
1978-79	4 NOV- 1 JAN	60	0800-1630	3/6		STATEWIDE
1979-80	3 NOV- 6 JAN	65	0800-1630	3/6		STATEWIDE
1980-81	1 NOV- 4 JAN	65	0800-1630	3/6		STATEWIDE
1981-82	7 NOV- 3 JAN	58	0800-1630	3/6		STATEWIDE
1982-83	6 NOV- 2 JAN	58	0800-1630	3/6		STATEWIDE

Table 5.10 Continued.

YEAR	DATES REGULAR / YOUTH	SEASON LENGTH	SHOOTING HOURS	LIMIT - BAG/POSS REGULAR	LIMIT - BAG/POSS YOUTH	# COUNTIES OPEN
1983-84	5 NOV- 1 JAN	58	0800-1630	3/6		STATEWIDE
1984-85	3 NOV- 1 JAN	60	0800-1630	3/6		STATEWIDE
1985-86	2 NOV- 5 JAN	65	0800-1630	3/9		STATEWIDE
1986-87	1 NOV- 4 JAN	65	0800-1630	3/9		STATEWIDE
1987-88	31 OCT- 3 JAN	65	0800-1630	3/12		STATEWIDE
1988-89	29 OCT- 8 JAN	72	0800-1630	3/12		STATEWIDE
1989-90	28 OCT-10 JAN	75	0800-1630	3/12		STATEWIDE
1990-91	27 OCT-10 JAN	76	0800-1630	3/12		STATEWIDE
1991-92	26 OCT-10 JAN	77	0800-1630	3/12		STATEWIDE
1992-93	31 OCT-10 JAN	72	0800-1630	3/12		STATEWIDE
1993-94	30 OCT-10 JAN	72	0800-1630	3/12		STATEWIDE
1994-95	29 OCT-10 JAN	74	0800-1630	3/12		STATEWIDE
1995-96	28 OCT-10 JAN	75	0800-1630	3/12		STATEWIDE
1996-97	26 OCT-10 JAN	77	0800-1630	3/12		STATEWIDE
1997-98[1]	26 OCT-10 JAN / 18-19 OCT	78/2	0800-1630	3/12	1/2	STATEWIDE
1998-99	31 OCT-10 JAN / 23-24 OCT	72/2	0800-1630	3/12	1/2	STATEWIDE
1999-00	30 OCT-10 JAN / 22-23 OCT	73/2	0800-1630	3/12	1/2	STATEWIDE
2000-01	28 OCT-10 JAN / 21-22 OCT	75/2	0800-1630	3/12	1/2	STATEWIDE
2001-02	27 OCT-10 JAN / 20-21 OCT	76/2	0800-1630	3/12	1/2	STATEWIDE
2002-03	26 OCT-10 JAN / 19-20 OCT	77/2	0800-1630	3/12	1/2	STATEWIDE
2003-04	25 OCT-10 JAN / 18-19 OCT	78/2	0800-1630	3/12	1/2	STATEWIDE
2004-05	30 OCT-10 JAN / 23-24 OCT	73/2	0800-1630	3/12	1/2	STATEWIDE
2005-06	29 OCT-10 JAN / 22-23 OCT	74/2	0800-1630	3/12	1/2	STATEWIDE
2006-07	28 OCT-10 JAN / 21-22 OCT	75/2	0800-1630	3/12	1/2	STATEWIDE
2007-08	27 OCT-10 JAN / 21-22 OCT	76/2	0800-1630	3/12	1/2	STATEWIDE
2008-09	25 OCT-10 JAN / 18-19 OCT	78/2	0800-1630	3/12	1/2	STATEWIDE
2009-10	31 OCT-10 JAN / 24-25 OCT	72/2	0800-1630	3/12	1/2	STATEWIDE
2010-11	30 OCT-10 JAN / 23-24 OCT	73/2	0800-1630	3/12	1/2	STATEWIDE
2011-12	29 OCT-10 JAN / 22-23 OCT	74/2	0800-1630	3/12	1/2	STATEWIDE
2012-13	27 OCT-10 JAN / 20-21 OCT	76/2	0800-1630	3/12	1/2	STATEWIDE

[1] Iowa's first youth pheasant season, open to resident hunters 15 years or younger.

Table 5.11 Iowa's Bobwhite quail hunting seasons.

YEAR	DATES	SEASON LENGTH	SHOOTING HOURS	LIMIT BAG/POSS	AREA OPEN
1963-64	2 NOV- 1 JAN	61	0830-1700	6/12	STATEWIDE
1964-65	31 OCT- 3 JAN	65	0830-1700	8/16	STATEWIDE
1965-66	6 NOV-31 JAN	86	0830-1600	8/16	STATEWIDE
1966-67	22 OCT-31 JAN	102	0800-1630	8/16	STATEWIDE
1967-68	21 OCT-28 JAN	103	0800-1630	8/16	STATEWIDE
1968-69	26 OCT-31 JAN	98	0800-1630	8/16	STATEWIDE
1969-70	25 OCT-31 JAN	99	0800-1630	8/16	STATEWIDE
1970-71	24 OCT-31 JAN	100	0800-1630	8/16	STATEWIDE
1971-72	23 OCT-31 JAN	101	0800-1630	8/16	STATEWIDE
1972-73	28 OCT-31 JAN	96	0800-1630	8/16	STATEWIDE
1973-74	27 OCT-31 JAN	97	0800-1630	8/16	STATEWIDE
1974-75	26 OCT-31 JAN	98	SUNRISE-SUNSET	8/16	STATEWIDE
1975-76	25 OCT-31 JAN	99	0800-1630	8/16	STATEWIDE
1976-77	6 NOV-31 JAN	86	0800-1630	8/16	STATEWIDE
1977-78	5 NOV-31 JAN	87	0800-1630	8/16	STATEWIDE
1978-79	4 NOV-31 JAN	88	0800-1630	8/16	STATEWIDE
1979-80	3 NOV- 6 JAN	64	0800-1630	6/12	STATEWIDE
1980-81	1 NOV-31 JAN	92	0800-1630	8/16	STATEWIDE
1981-82	7 NOV-31 JAN	86	0800-1630	8/16	STATEWIDE
1982-83	6 NOV-31 JAN	87	0800-1630	8/16	STATEWIDE
1983-84	5 NOV-31 JAN	88	0800-1630	8/16	STATEWIDE
1984-85	3 NOV-31 JAN	90	0800-1630	8/16	STATEWIDE
1985-86	2 NOV-31 JAN	91	0800-1630	8/16	STATEWIDE
1986-87	1 NOV-31 JAN	92	0800-1630	8/16	STATEWIDE
1987-88	31 OCT-31 JAN	93	0800-1630	8/16	STATEWIDE
1988-89	29 OCT-31 JAN	95	0800-1630	8/16	STATEWIDE
1989-90	28 OCT-31 JAN	96	0800-1630	8/16	STATEWIDE
1990-91	27 OCT-31 JAN	97	0800-1630	8/16	STATEWIDE
1991-92	26 OCT-31 JAN	98	0800-1630	8/16	STATEWIDE
1992-93	31 OCT-31 JAN	93	0800-1630	8/16	STATEWIDE
1993-94	30 OCT-31 JAN	93	0800-1630	8/16	STATEWIDE
1994-95	29 OCT-31 JAN	95	0800-1630	8/16	STATEWIDE
1995-96	28 OCT-31 JAN	96	0800-1630	8/16	STATEWIDE
1996-97	26 OCT-31 JAN	98	0800-1630	8/16	STATEWIDE
1997-98	25 OCT-31 JAN	99	0800-1630	8/16	STATEWIDE
1998-99	31 OCT-31 JAN	93	0800-1630	8/16	STATEWIDE
1999-00	30 OCT-31 JAN	94	0800-1630	8/16	STATEWIDE
2000-01	28 OCT-31 JAN	96	0800-1630	8/16	STATEWIDE
2001-02	27 OCT-31 JAN	97	0800-1630	8/16	STATEWIDE
2002-03	26 OCT-31 JAN	98	0800-1630	8/16	STATEWIDE
2003-04	25 OCT-31 JAN	99	0800-1630	8/16	STATEWIDE
2004-05	30 OCT-31 JAN	94	0800-1630	8/16	STATEWIDE
2005-06	29 OCT-31 JAN	95	0800-1630	8/16	STATEWIDE
2006-07	28 OCT-31 JAN	96	0800-1630	8/16	STATEWIDE
2007-08	27 OCT-31 JAN	97	0800-1630	8/16	STATEWIDE
2008-09	25 OCT-31 JAN	99	0800-1630	8/16	STATEWIDE
2009-10	31 OCT-31 JAN	93	0800-1630	8/16	STATEWIDE
2010-11	30 OCT-31 JAN	94	0800-1630	8/16	STATEWIDE
2011-12	29 OCT-31 JAN	95	0800-1630	8/16	STATEWIDE
2012-13	27 OCT-31 JAN	97	0800-1630	8/16	STATEWIDE

Table 5.12 Iowa's Hungarian partridge hunting seasons.

YEAR	DATES	SEASON LENGTH	SHOOTING HOURS	LIMIT BAG/POSS	AREA OPEN
1963-64	9 NOV- 1 JAN	54	0830-1700	2/4	16 NW COUNTIES
1964-65	7 NOV- 3 JAN	58	0830-1700	2/4	W US 65, N US 20
1965-66	13 NOV- 2 JAN	51	0830-1600	2/4	W US 65, N US 20
1966-67	12 NOV- 2 JAN	52	0800-1630	2/4	W US 65, N US 20
1967-68	11 NOV- 1 JAN	52	0800-1630	2/4	W US 65, N US 20
1968-69	9 NOV-31 DEC	53	0800-1630	4-Feb	?
1969-70	8 NOV-31 DEC	54	0800-1630	2/4	?
1970-71	14 NOV- 3 JAN	51	0800-1630	2/4	W. US 65; N. US 30, I29, STATE 141
1971-72	13 NOV- 2 JAN	51	0800-1630	2/4	W. US 65; N. US 30, I29, STATE 141
1972-73	11 NOV- 1 JAN	52	0800-1630	4/8	W. US 65; N. US 30, I29, STATE 141
1973-74	10 NOV- 6 JAN	58	0800-1630	4/8	N. US 30
1974-75	9 NOV- 5 JAN	58	SUNRISE-SUNSET	4/8	N. US 30
1975-76	8 NOV- 4 JAN	58	0800-1630	4/8	N. US 30
1976-77	6 NOV- 2 JAN	58	0800-1630	4/8	N. US 30
1977-78	5 NOV- 1 JAN	58	0800-1630	6/12	N. US 30
1978-79	4 NOV- 1 JAN	60	0800-1630	6/12	N. US 30
1979-80	3 NOV- 6 JAN	65	0800-1630	6/12	N. US 30
1980-81	1 NOV-31 JAN	92	0800-1630	6/12	N. I-80
1981-82	7 NOV-31 JAN	86	0800-1630	6/12	N. I-80
1982-83	6 NOV-31 JAN	87	0800-1630	6/12	N. I-80
1983-84	5 NOV-31 JAN	88	0800-1630	6/12	N. I-80
1984-85	3 NOV-31 JAN	90	0800-1630	6/12	N. I-80
1985-86	2 NOV-31 JAN	91	0800-1630	6/12	N. I-80
1986-87	1 NOV-31 JAN	92	0800-1630	6/12	STATEWIDE
1987-88	31 OCT-31 JAN	93	0800-1630	8/16	STATEWIDE
1988-89	29 OCT-31 JAN	94	0800-1630	8/16	STATEWIDE
1989-90	7 OCT-31 JAN	117	0800-1630	8/16	STATEWIDE
1990-91	6 OCT-31 JAN	118	0800-1630	8/16	STATEWIDE
1991-92	5 OCT-31 JAN	119	0800-1630	8/16	STATEWIDE
1992-93	10 OCT-31 JAN	114	0800-1630	8/16	STATEWIDE
1993-94	9 OCT-31 JAN	115	0800-1630	8/16	STATEWIDE
1994-95	8 OCT-31 JAN	116	0800-1630	8/16	STATEWIDE
1995-96	14 OCT-31 JAN	109	0800-1630	8/16	STATEWIDE
1996-97	12 OCT-31 JAN	112	0800-1630	8/16	STATEWIDE
1997-98	11 OCT-31 JAN	113	0800-1630	8/16	STATEWIDE
1998-99	10 OCT-31 JAN	114	0800-1630	8/16	STATEWIDE
1999-00	9 OCT-31 JAN	115	0800-1630	8/16	STATEWIDE
2000-01	14 OCT-31 JAN	110	0800-1630	8/16	STATEWIDE
2001-02	13 OCT-31 JAN	111	0800-1630	8/16	STATEWIDE
2002-03	12 OCT-31 JAN	112	0800-1630	8/16	STATEWIDE
2003-04	11 OCT-31 JAN	113	0800-1630	8/16	STATEWIDE
2004-05	9 OCT-31 JAN	115	0800-1630	8/16	STATEWIDE
2005-06	8 OCT-31 JAN	116	0800-1630	8/16	STATEWIDE
2006-07	7 OCT-31 JAN	117	0800-1630	8/16	STATEWIDE
2007-08	13 OCT-31 JAN	111	0800-1630	8/16	STATEWIDE
2008-09	11 OCT-31 JAN	113	0800-1630	8/16	STATEWIDE
2009-10	10 OCT-31 JAN	114	0800-1630	8/16	STATEWIDE
2010-11	9 OCT-31 JAN	115	0800-1630	8/16	STATEWIDE
2011-12	8 OCT-31 JAN	116	0800-1630	8/16	STATEWIDE
2012-13	13 OCT-31 JAN	111	0800-1630	8/16	STATEWIDE

Table 5.13 Iowa's cottontail and jackrabbit seasons.

YEAR	DATES COTTONTAILS / JACKRABBITS	SEASON LENGTH	SHOOTING HOURS	LIMIT - BAG/POSS COTTONTAILS	JACKRABBITS	AREA OPEN
1963-64	14 SEP-23 FEB	163	0600-1800	AGGREGATE - 10/NONE		STATEWIDE
1964-65	12 SEP-21 FEB	163	0600-1800	AGGREGATE - 10/NONE		STATEWIDE
1965-66	12 SEP-21 FEB	163	0600-1800	AGGREGATE - 10/NONE		STATEWIDE
1966-67	10 SEP-19 FEB	163	0600-1800	AGGREGATE - 10/NONE		STATEWIDE
1967-68	15 SEP-17 FEB	163	0600-1800	AGGREGATE - 10/NONE		STATEWIDE
1968-69	14 SEP-16 FEB	163	0600-1800	AGGREGATE - 10/NONE		STATEWIDE
1969-70	13 SEP-15 FEB	163	0600-1800	AGGREGATE - 10/NONE		STATEWIDE
1970-71	12 SEP-28 FEB	170	0600-1800	AGGREGATE - 10/NONE		STATEWIDE
1971-72	11 SEP-29 FEB	171	0600-1800	AGGREGATE - 10/NONE		STATEWIDE
1972-73	9 SEP-28 FEB	173	0600-1800	AGGREGATE - 10/NONE		STATEWIDE
1973-74	8 SEP-28 FEB	174	0600-1800	AGGREGATE - 10/NONE		STATEWIDE
1974-75	7 SEP-28 FEB	175	SUNRISE-SUNSET	AGGREGATE - 10/NONE		STATEWIDE
1975-76	6 SEP-28 FEB	176	SUNRISE-SUNSET	AGGREGATE - 10/NONE		STATEWIDE
1976-77	11 SEP-28 FEB	171	SUNRISE-SUNSET	AGGREGATE - 10/NONE		STATEWIDE
1977-78	3 SEP-28 FEB	179	SUNRISE-SUNSET	AGGREGATE - 10/NONE		STATEWIDE
1978-79	2 SEP-28 FEB/4 NOV-7 JAN	180/65	SUNRISE-SUNSET	10/NONE	3/6	STATEWIDE
1979-80	1 SEP-29 FEB/3 NOV-6 JAN	182/65	SUNRISE-SUNSET	10/20	3/6	STATEWIDE
1980-81	6 SEP-28 FEB/1 NOV-4 JAN	176/65	SUNRISE-SUNSET	10/20	3/6	STATEWIDE
1981-82	5 SEP-28 FEB/7 NOV-3 JAN	177/58	SUNRISE-SUNSET	10/20	3/6	STATEWIDE
1982-83	4 SEP-28 FEB/6 NOV-2 JAN	178/58	SUNRISE-SUNSET	10/20	3/6	STATEWIDE
1983-84	3 SEP-29 FEB/5 NOV-18 DEC	180/44	SUNRISE-SUNSET	10/20	3/6	STATEWIDE
1984-85	1 SEP-28 FEB/3 NOV-16 DEC	181/44	SUNRISE-SUNSET	10/20	3/6	STATEWIDE
1985-86	31 AUG-28 FEB/2 NOV-15 DEC	182/44	SUNRISE-SUNSET	10/20	3/6	STATEWIDE
1986-87	30 AUG-28 FEB/1 NOV-14 DEC	183/44	SUNRISE-SUNSET	10/20	3/6	STATEWIDE
1987-88	5 SEP-29 FEB/31 OCT-13 DEC	178/44	SUNRISE-SUNSET	10/20	3/6	STATEWIDE
1988-89	3 SEP-28 FEB/28 OCT-10 DEC	179/44	SUNRISE-SUNSET	10/20	3/6	STATEWIDE
1989-90	2 SEP-28 FEB/29 OCT-11 DEC	180/44	SUNRISE-SUNSET	10/20	3/6	STATEWIDE
1990-91	1 SEP-28 FEB/27 OCT-9 DEC	181/44	SUNRISE-SUNSET	10/20	3/6	STATEWIDE
1991-92	31 AUG-29 FEB/26 OCT-8 DEC	183/44	SUNRISE-SUNSET	10/20	3/6	STATEWIDE
1992-93	5 SEP-28 FEB/31 OCT-6 DEC	177/37	SUNRISE-SUNSET	10/20	3/6	STATEWIDE
1993-94	4 SEP-28 FEB/30 OCT-5 DEC	176/37	SUNRISE-SUNSET	10/20	2/4	STATEWIDE
1994-95	3 SEP-28 FEB/29 OCT-4 DEC	177/37	SUNRISE-SUNSET	10/20	2/4	STATEWIDE
1995-96	2 SEP-28 FEB/28 OCT-1 DEC	178/35	SUNRISE-SUNSET	10/20	2/4	STATEWIDE
1996-97	7 SEP-28 FEB/26 OCT-1 DEC	174/37	SUNRISE-SUNSET	10/20	2/4	STATEWIDE
1997-98	1 SEP-28 FEB/25 OCT-1 DEC	181/38	SUNRISE-SUNSET	10/20	2/4	STATEWIDE
1998-99	1 SEP-28 FEB/31 OCT-1 DEC	181/32	SUNRISE-SUNSET	10/20	2/4	STATEWIDE
1999-00	1 SEP-28 FEB/30 OCT-1 DEC	181/33	SUNRISE-SUNSET	10/20	2/4	STATEWIDE
2000-01	1 SEP-28 FEB/28 OCT-1 DEC	181/35	SUNRISE-SUNSET	10/20	2/4	STATEWIDE
2001-02	1 SEP-28 FEB/27 OCT-1 DEC	181/36	SUNRISE-SUNSET	10/20	2/4	STATEWIDE
2002-03	1 SEP-28 FEB/26 OCT-1 DEC	181/37	SUNRISE-SUNSET	10/20	2/4	STATEWIDE
2003-04	1 SEP-28 FEB/25 OCT-1 DEC	181/38	SUNRISE-SUNSET	10/20	2/4	STATEWIDE
2004-05	1 SEP-28 FEB/30 OCT-1 DEC	181/33	SUNRISE-SUNSET	10/20	2/4	STATEWIDE
2005-06	1 SEP-28 FEB/29 OCT-1 DEC	181/34	SUNRISE-SUNSET	10/20	2/4	STATEWIDE
2006-07	1 SEP-28 FEB/28 OCT-1 DEC	181/35	SUNRISE-SUNSET	10/20	1/2	STATEWIDE
2007-08	1 SEP-28 FEB/27 OCT-1 DEC	181/36	SUNRISE-SUNSET	10/20	1/2	STATEWIDE
2008-09	30 AUG-28 FEB/25 OCT-1 DEC	182/38	SUNRISE-SUNSET	10/20	1/2	STATEWIDE
2009-10	5 SEP-28 FEB/31 OCT-1 DEC	177/32	SUNRISE-SUNSET	10/20	1/2	STATEWIDE
2010-11	4 SEP-28 FEB/30 OCT-1 DEC	178/33	SUNRISE-SUNSET	10/20	1/2	STATEWIDE
2011-12	3 SEP-28 FEB/Closed	179/Closed	SUNRISE-SUNSET	10/20	Closed	STATEWIDE
2012-13	1 SEP-28 FEB/Closed	181/Closed	SUNRISE-SUNSET	10/20	Closed	STATEWIDE

1963-1977 SEASONS AND LIMITS ARE AN AGGREGATE OF COTTONTAILS AND JACKRABBITS.

a Cottontail opener changed from 1 Sept. to Saturday before Labor Day.

Figure 5.1 Survey regions for the August Roadside Survey.

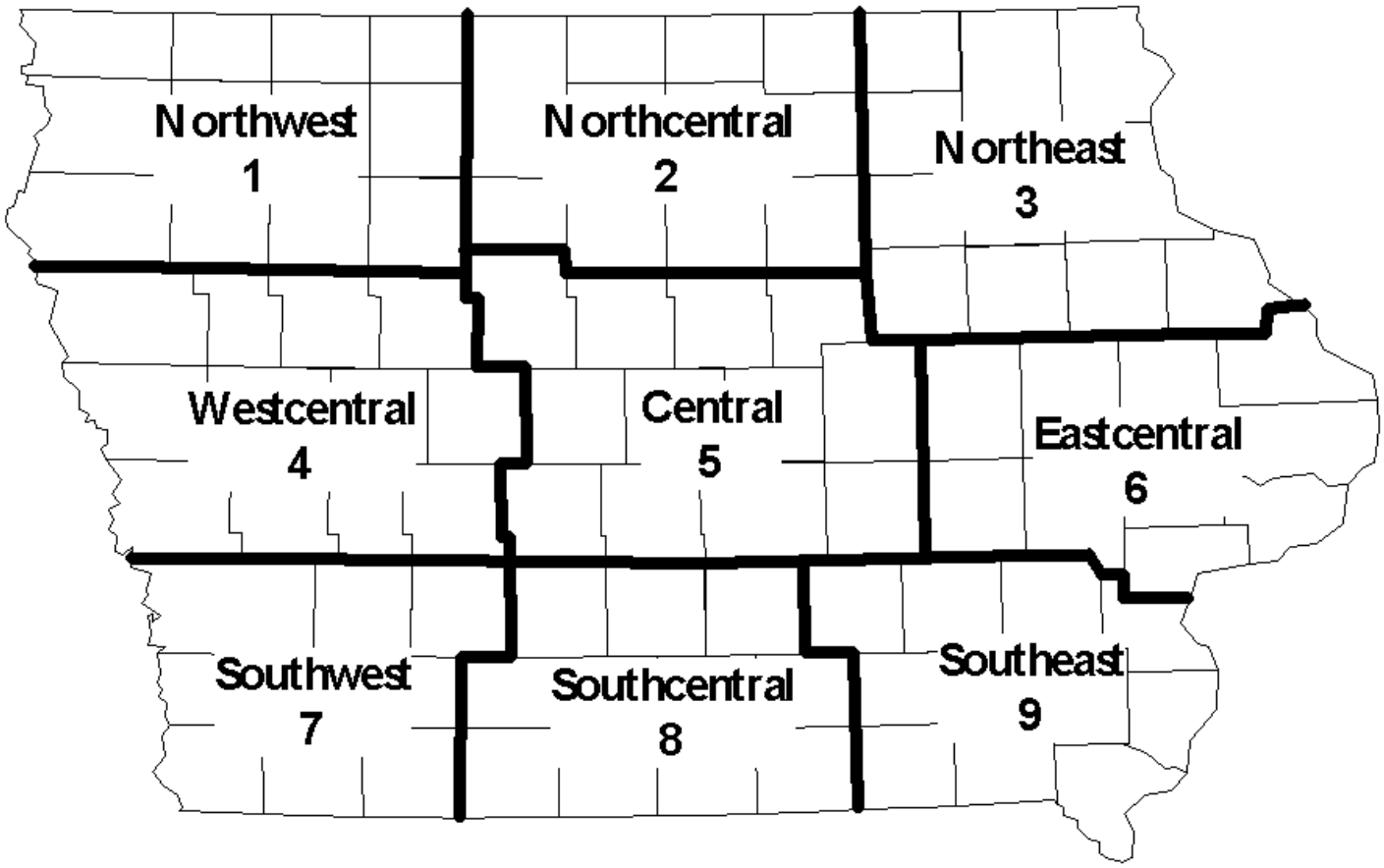


Figure 5.2 Statewide trends in pheasant harvest and August roadside survey counts

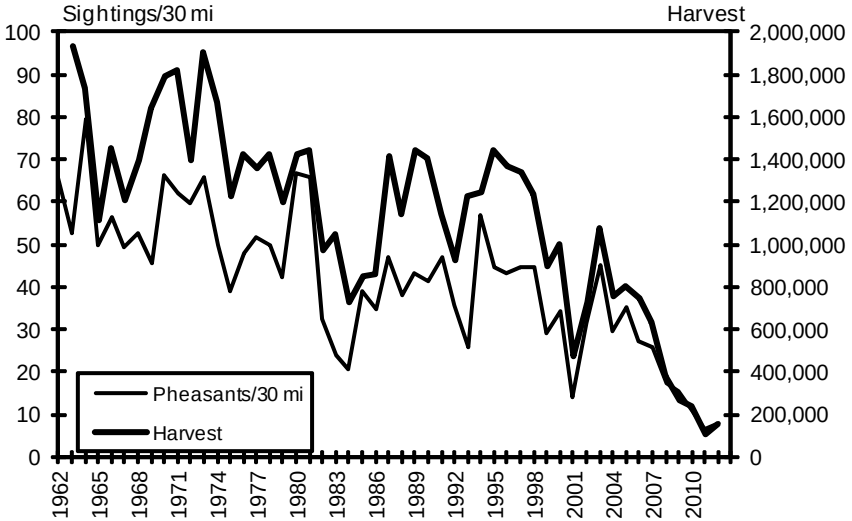


Figure 5.3 Statewide trends in pheasant broods and average brood size from August roadside survey

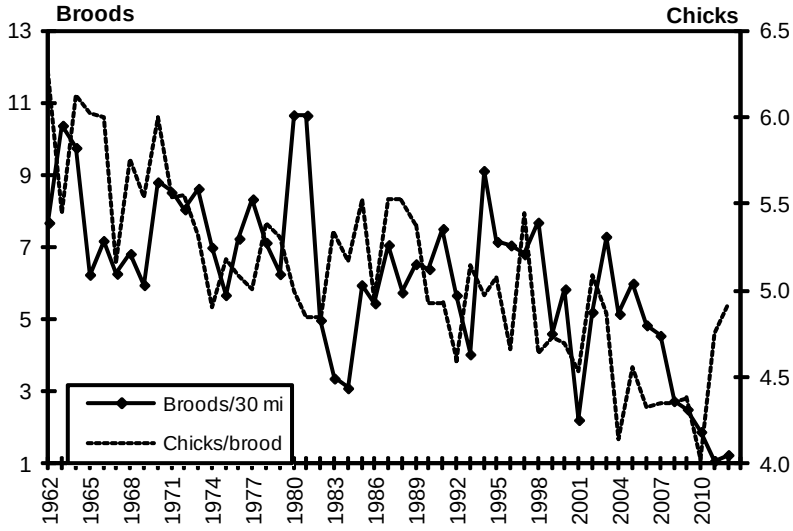


Figure 5.4 Statewide sex ratio and estimated cock harvest from winter pheasant surveys

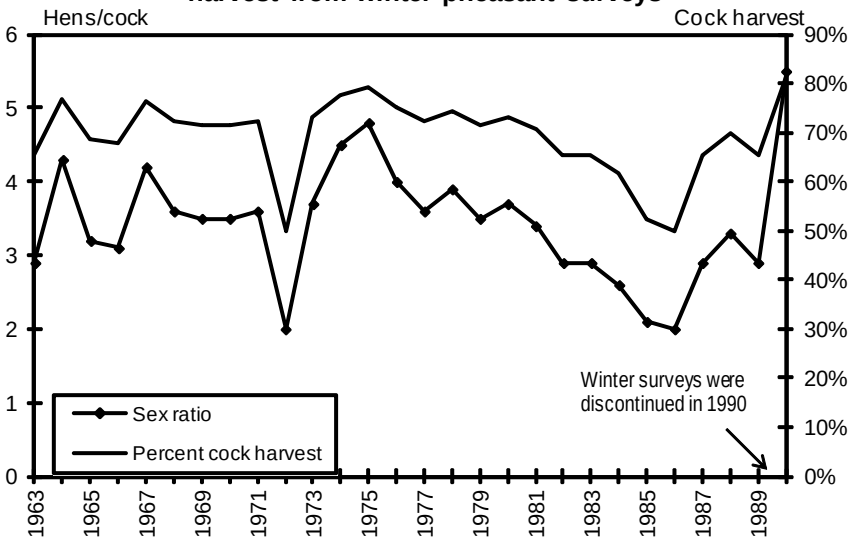


Figure 5.5 Statewide trends in pheasant hens with and without broods from August roadside survey

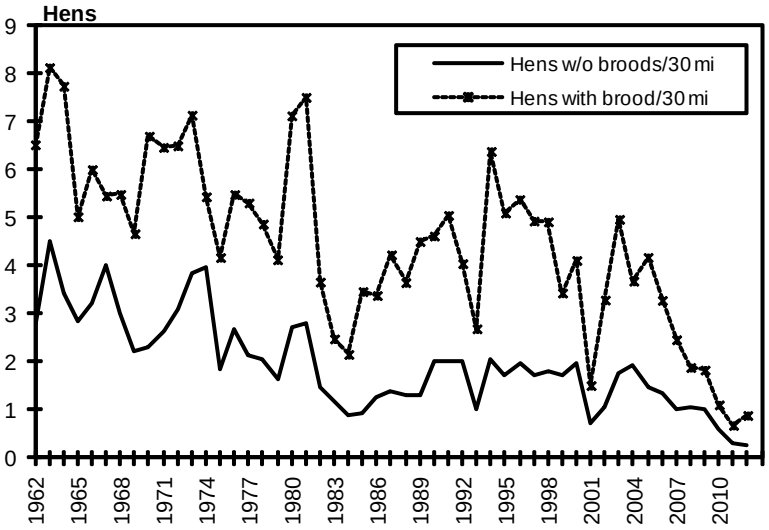
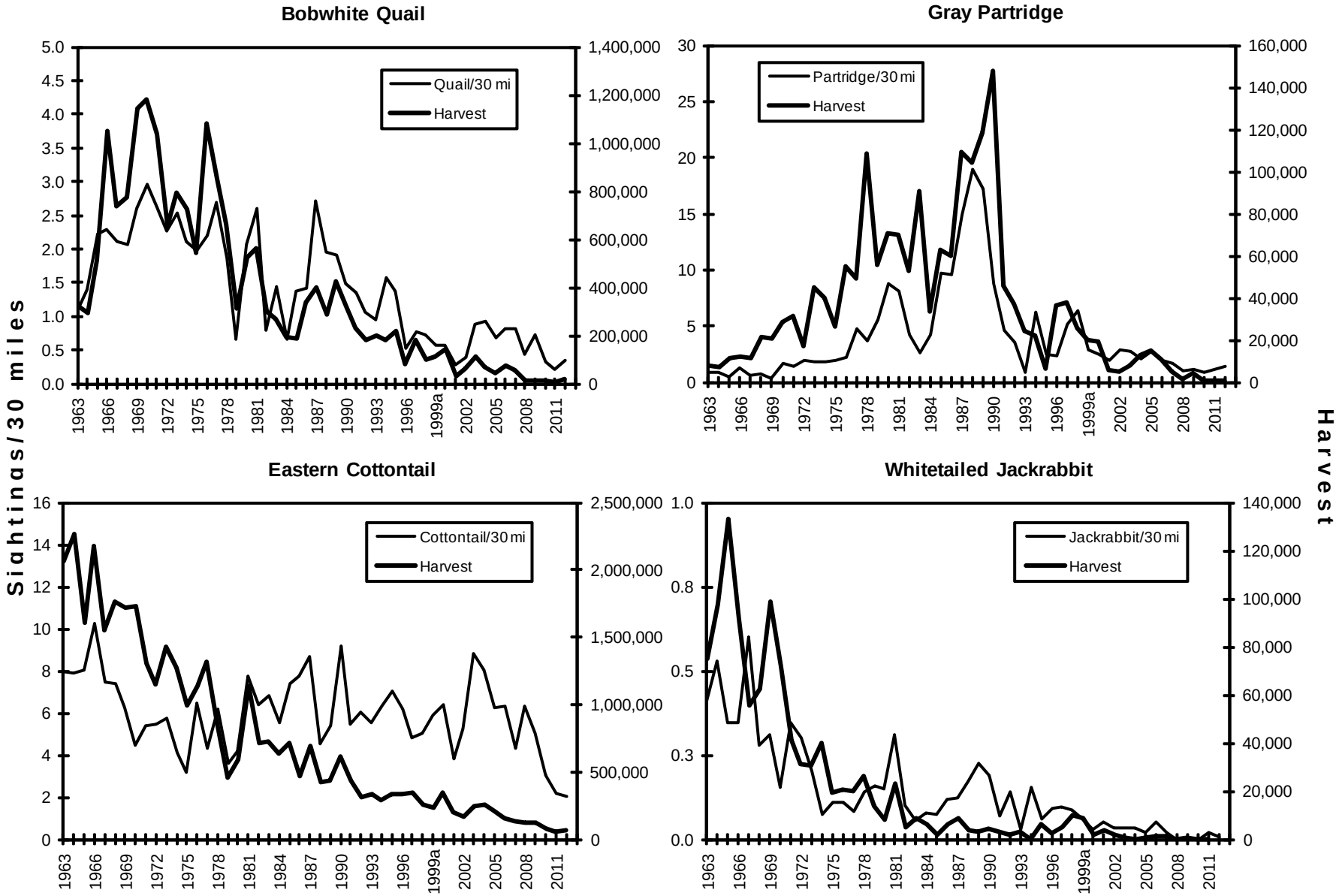


Figure 5.6 Statewide trends in small game harvests and August roadside survey counts



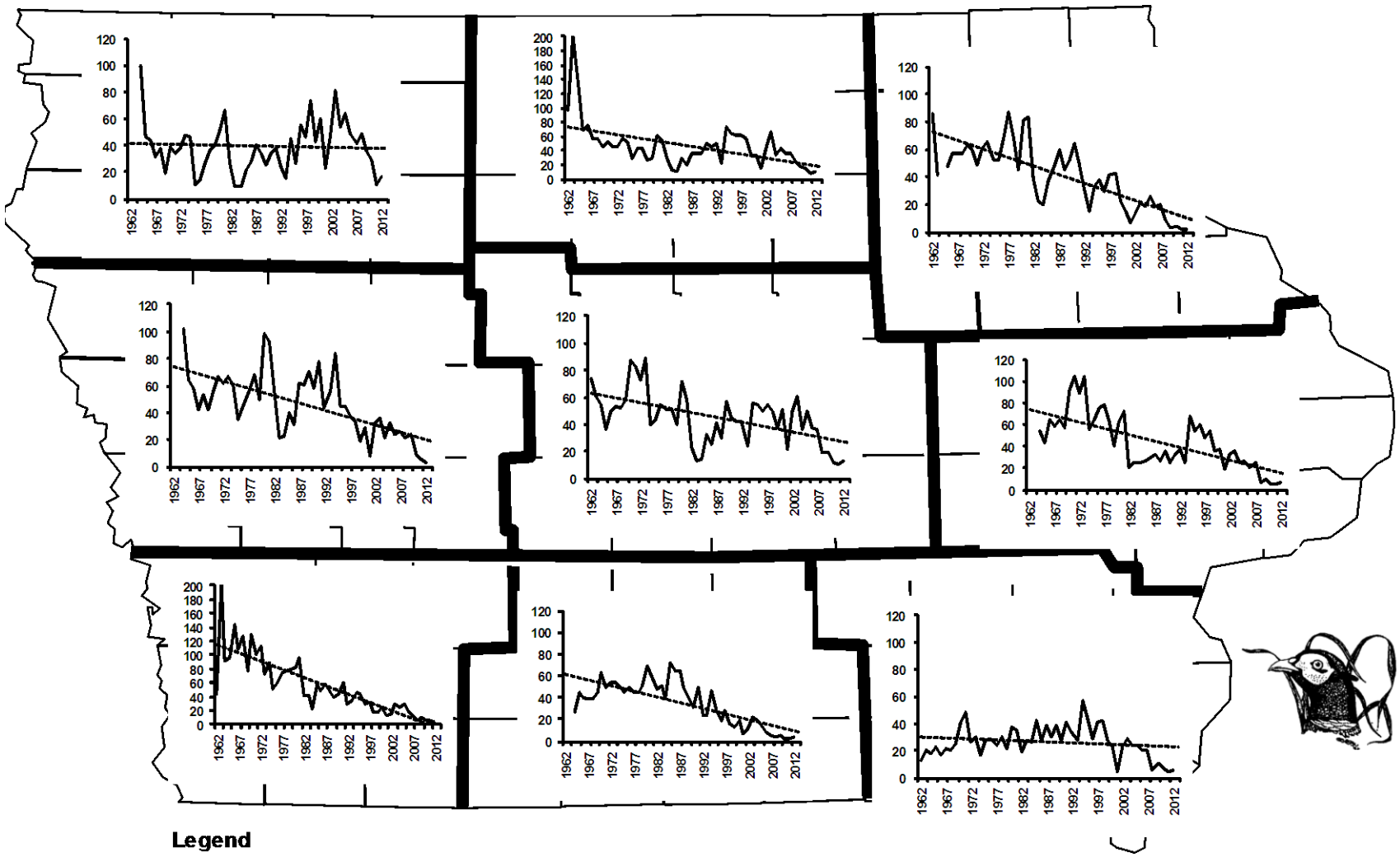


Figure 5.7 Regional trends in ring-necked pheasant numbers from the August roadside survey (1962-present).

Note: Because of variation in historical counts, vertical axises among survey regions are not to the same scale.

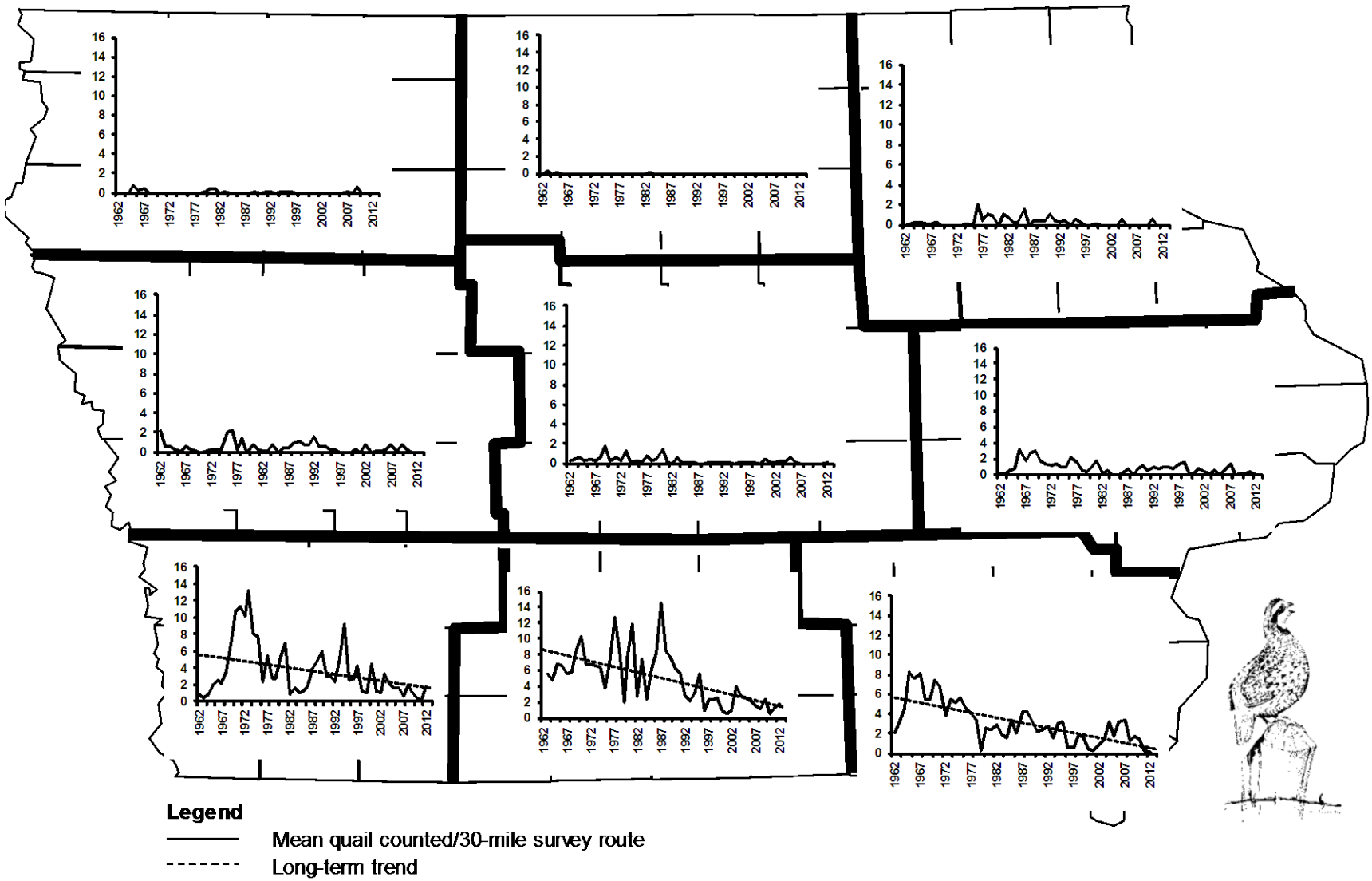


Figure 5.8 Regional trends in bobwhite quail numbers from the August roadside survey (1962-present).

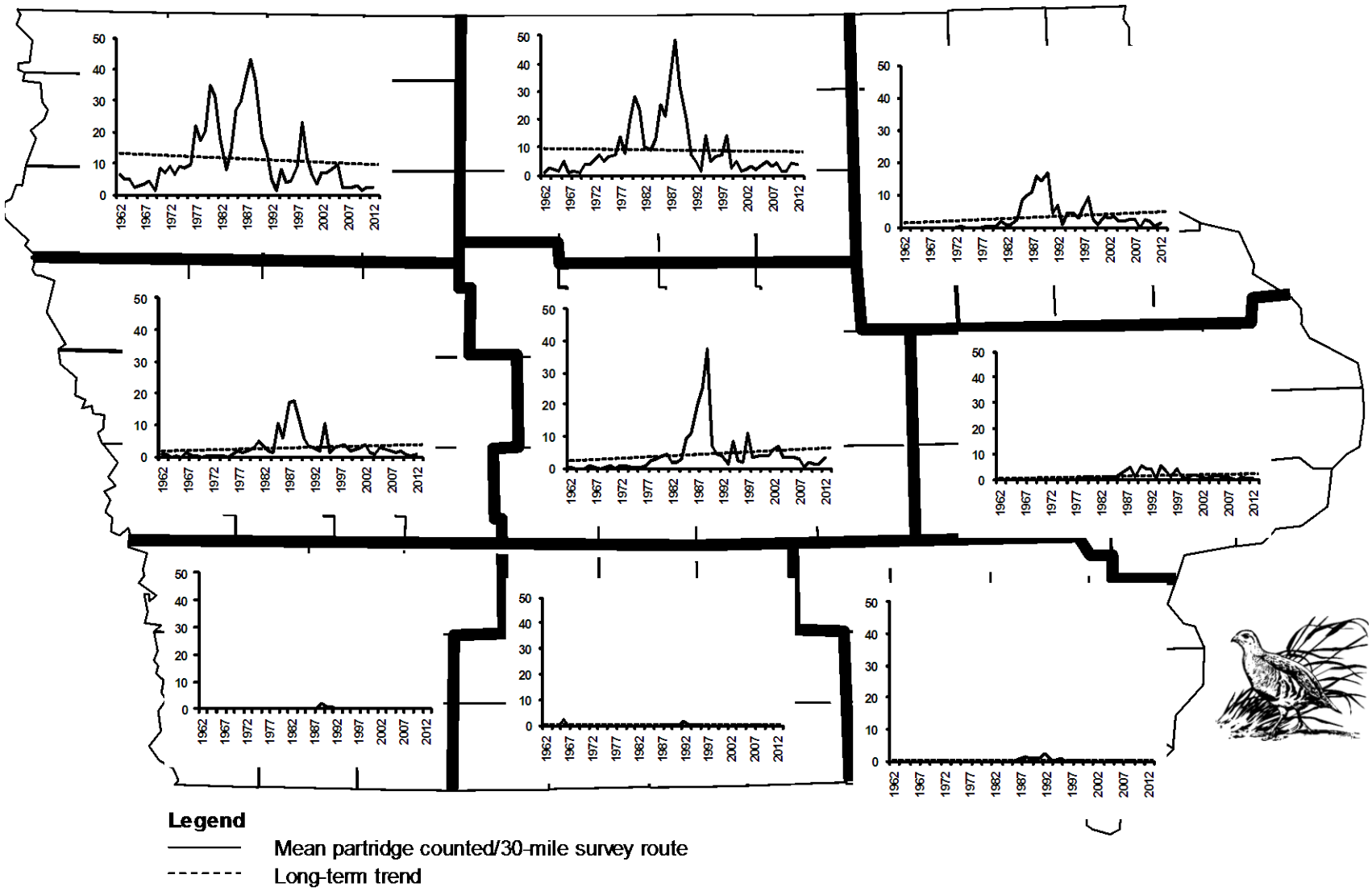


Figure 5.9 Regional trends in gray partridge numbers from the August roadside survey (1963-present).

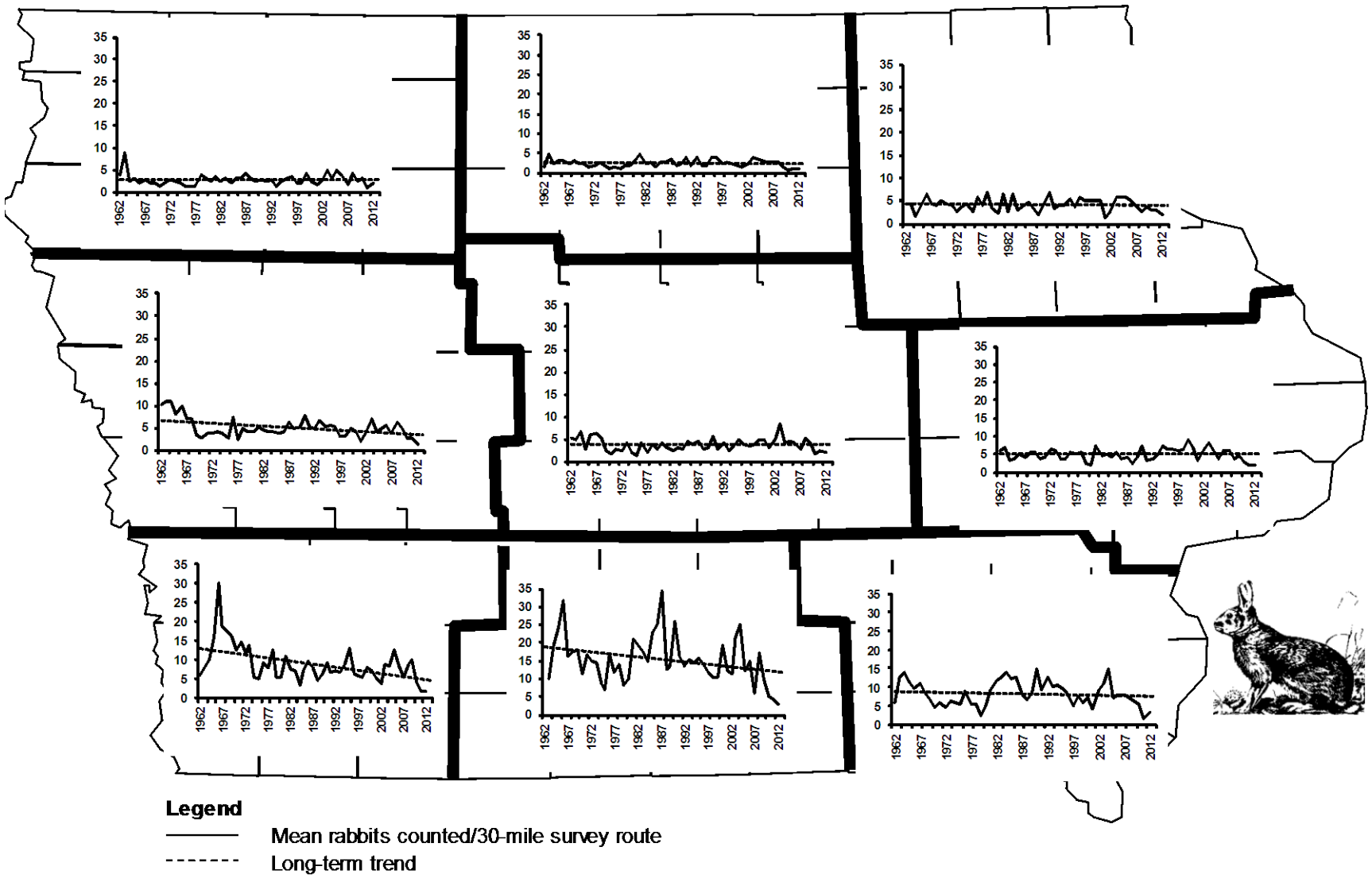


Figure 5.10 Regional trends in cottontail rabbit numbers from the August roadside survey (1962-present).

Figure 5.11 Sales of Iowa hunting licenses

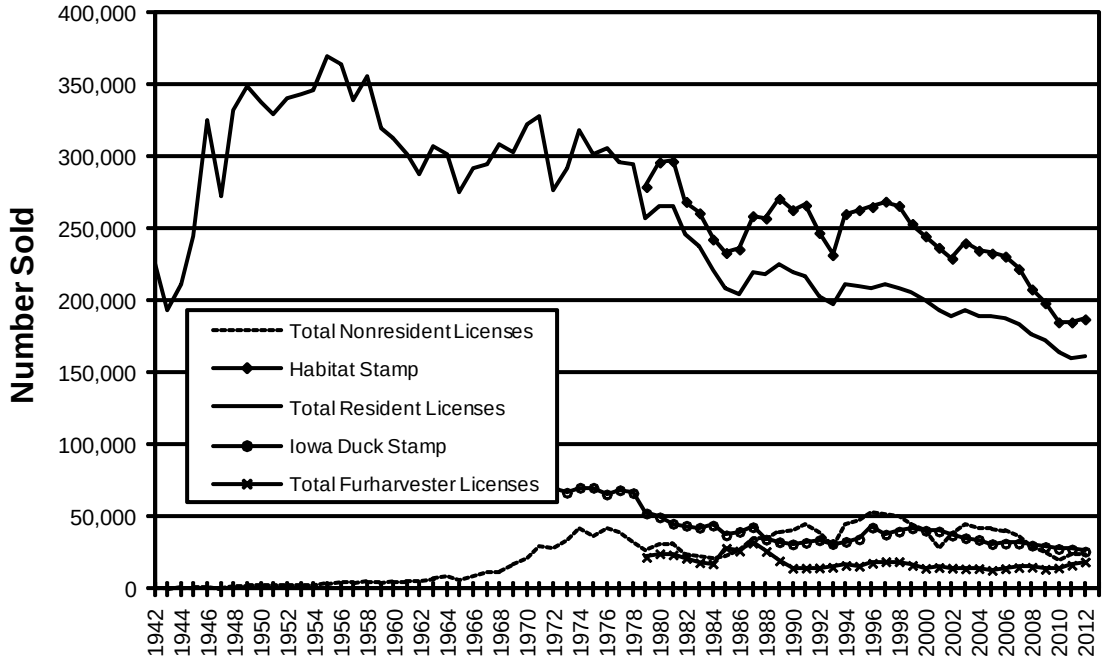
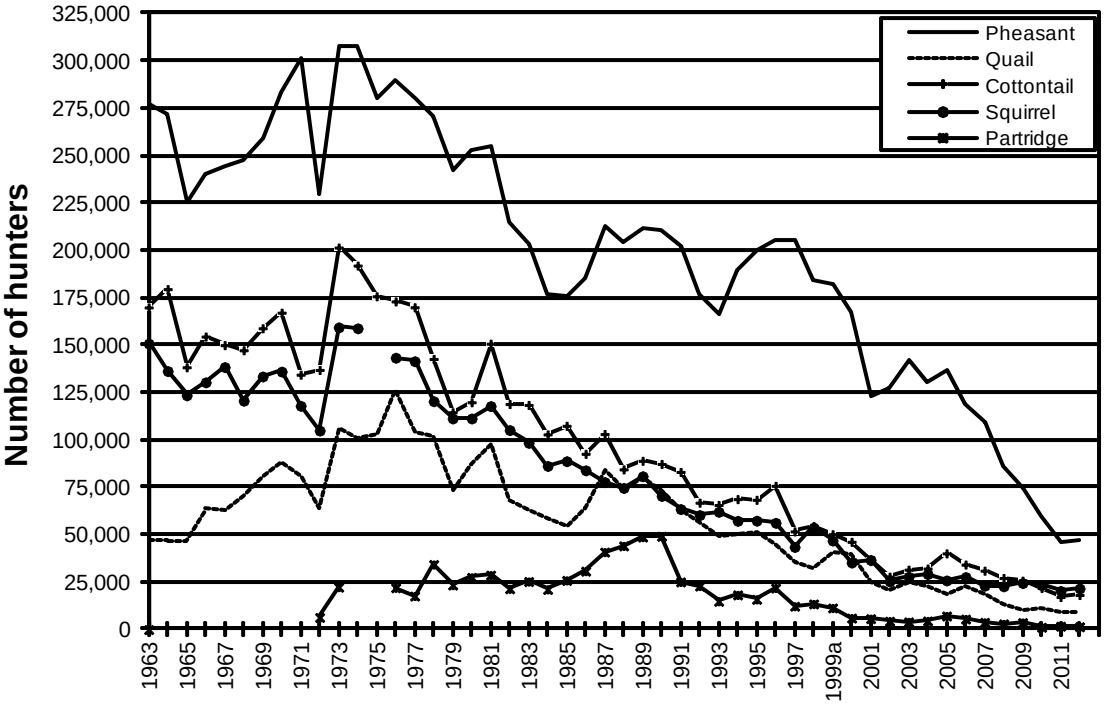


Figure 5.12 Estimated number of Iowa small-game hunters (resident and NR hunters combined)



WILDLIFE RESTORATION – 2012-2013 activities

PEREGRINE FALCON RESTORATION

The peregrine falcon (*Falco peregrinus*) was extirpated as a breeding bird from the eastern U.S. by 1964. In the Midwest, peregrines formerly nested on cliffs along Lake Superior, Lake Michigan and the upper Mississippi River, plus suitable palisade areas. The upper Mississippi River area was the major historic nesting area for peregrines in the Midwest, with an estimated historic population of 30 – 35 pairs (Tordoff 1986). Most of Iowa's historic peregrine nesting occurred on the Mississippi River bluffs of northeastern Iowa in Allamakee, Clayton, Dubuque, and Clinton counties (Anderson 1907, Allert 1939, Pierce 1940), but nesting also occurred on the palisades of the Cedar River in Linn and Johnson counties (Bailey 1918) and along the Cedar River in Black Hawk County (Anderson 1907). A nest was also reported at the mouth of Beaver Creek in Polk County (DuMont 1931). Prior to reintroduction, the last documented nests were noted in 1955 and 1956 at two of six eyries in Allamakee County (Berger and Mueller 1969), although there were reports of a nest with two eggs in Allamakee County in 1964 and a nest with downy young at Blackhawk Point, Allamakee County in 1967 (Roosa and Stravers 1989). Pesticides, specifically DDT, were the primary cause for the dramatic decline in the peregrine population. Until 1998, the peregrine falcon was a federally and state listed endangered species. The bird was federally delisted in 1998, but remains on the state endangered species list.

In an effort to guide recovery of the peregrine falcon to the eastern U.S., an Eastern Peregrine Recovery Plan (EPRP) was developed. The overall goal of this plan was to establish a viable peregrine falcon population consisting of 175 breeding pairs, which is half of the pre-pesticide population. For each region of the eastern U.S., EPRP set a goal of 20-25 breeding pairs. Iowa falls under the Midwestern and Great Lakes regional plan (MGLRP). As part of the MGLRP, Iowa set a goal of establishing 5 breeding pair by the year 2000 with an ultimate goal of 10 breeding pair for a viable population. To achieve this goal, the Wildlife Diversity program planned to release 55 peregrines in the first 5 years. The "magic number" of birds released to get one breeding pair return is about 13. A maturing bird is expected to return to a release site within 2-3 years after release and establish a territory within that area. As a result, no release site will be used for more than 2 years to avoid confrontations with adult falcons and hack birds.

Iowa's Peregrine Falcon Restoration project began in 1989 with the release of 10 (2F,8M) birds in Cedar Rapids from the Telecom USA building. There was one mortality during this first release when a bird collided with a building. Releases continued for the second year at the Cedar Rapids release site with 13 falcons (3F,10M) in 1990. Two of these birds, 1 male and 1 female, died as a result of collisions with buildings. During the 1990 hacking process a subadult male (T6?- apparently from 1989 C.R. release) showed up in Cedar Rapids and regularly interacted with hacked birds.

In 1991, a second release site was selected for the third year of the project. A total of 19 birds (8F,11M) were released in 1991 at the First Baptist Foundation of the Elsie Mason Manor in

Des Moines. Similar to the 1991 Cedar Rapids release, a subadult male (T93-from 1990 Cedar Rapids release) appeared for a brief period of time. Little to no aggressive interactions were observed between this subadult and the hacked falcons. During 1991, peregrines were observed in Cedar Rapids, Davenport and Keokuk; however, no nests were located. A second release was not attempted at the Des Moines site during 1992 because two falcons attempted to nest on the American Republic Insurance building. The female (R13 – Kansas City 1990) laid 5 eggs total. One egg rolled off the alcove ledge and another was cracked. The 3 remaining eggs were laid in a different alcove and never incubated. The male at this site was X20 from the 1990 Cedar Rapids release. This was the first nesting attempt in Iowa in nearly 30 years.

Elsewhere in the state during 1992, falcon pairs established two additional territories. A male falcon in Cedar Rapids successfully attracted a mate in mid-May, but it was too late in the season for breeding. The pair engaged in courtship flights and investigated the nest box on the Firststar Bank building, but did not actually attempt to nest. In the Quad Cities, a pair appeared to be incubating eggs under the Centennial Bridge; however, there were no observations of feeding in late-June. The site was investigated in September, but no eggs, egg fragments, dead young or even a definitive nest site was found.

The third release site chosen for releases in 1992 (the 4th year of the project) was Davenport. However, the arrival of a falcon pair precluded this site from release since the territorial adults could potentially harm the young hacked birds. As a result, 8 birds (2F,6M) were released from the Laurel Building in Muscatine during 1992. A male Cedar Rapids bird (T95 – 1990) appeared after the hacked birds fledged. T95 engaged in mock combat with the young and occasionally harassed them at the hack site, but he did not harm any of the young. Of the 8 birds released at Muscatine, 2 died, both males.

In 1993, there was much falcon activity across the state. We had 2 successful peregrine falcon nests in Iowa. The falcon pair returning to the American Republic Insurance building was the same male (X20) and female (R13) who attempted to nest in 1992. Shortly after their return, the male (X20) was found decapitated after a three-bird territorial dispute. The "winning" male did not remain in the area. The female (R13) eventually mated successfully with a third male, T93 (from 1990 Cedar Rapids release), that came to Des Moines. This pair successfully hatched and raised 3 young. In early July, one of these young was found dead in the air conditioning unit of the American Republic Insurance Building.

The second successful nest occurred in Cedar Rapids. The male was identified as X64 (Des Moines – 1991) and the female as R49 (Des Moines – 1991). This pair laid 4 eggs and hatched 2. Of the two young, one died of exposure from stormy weather. The Iowa Falconer's Association donated a young male to foster into the nest. The adults accepted the "implant" along with the remaining female chick. Both young fledged successfully from the nest.

A third nesting occurred in Iowa during 1993 at the Centennial Bridge in Davenport. A pair was observed demonstrating nesting behavior, but that soon changed about the time young should hatch. Closer observation of the nest site

did not reveal young or eggs, however, a possible scrape was located along with falcon prey remains. A decomposed body of a female falcon (W24 – Kenosha, WI) was found trapped in the I-beam of the bridge. It is possible that this bird was the nesting female. Once she became trapped, the male abandoned the nest and attracted a new female (R95 – Colonnade, MN). By this time, it was too late in the season for nesting.

At Muscatine, a single male (C/M – Muscatine, 1992) returned to the site, but did not attract a mate. Because of the return of this bird, a second release was not made at this site.

During 1994, two falcon pairs nested successfully, marking the second year in a row for nest success. The birds at Firststar Bank in Cedar Rapids were the same, R49 and X64. They laid and hatched 4 eggs (2F,2M), but one female died soon after hatching. Another chick was treated for trichonomoniasis (Frounce) and released. All three young fledged successfully. The second successful nest was at the same site in Des Moines – the American Republic Insurance building. This pair was also the same birds from 1993, R13 and T93. Their first nesting attempt on the east side of the building was unsuccessful as one egg rolled off the ledge and the other two eggs were abandoned. The birds moved to the west side where they laid and hatched three young (1F,2M), all of which fledged successfully. The young female later died as a result of a collision with a building and one young male died of unknown causes. There was no known nesting attempts at either Davenport or Muscatine, however, a bird was observed during the winter at the Centennial Bridge in Davenport.

The original goal established by EPRP of 20-25 nesting pair was met and replaced with a new regional goal of 40 territorial pairs. This new goal was met and surpassed in 1993. By 1994, the midwestern region had 61 territorial pairs with 41 successfully nesting. As a result of meeting the regional goal, many states tapered off falcon releases. However, Iowa's goal of establishing 5 nesting pairs by the year 2000 did not look promising without further releases. Furthermore, many did not consider the Midwestern population recovered since there was very little nesting on natural eyries aside from cliffs in northern Minnesota and Michigan.

In order to address the need for more releases in Iowa, a Peregrine Falcon Recovery Team (PFRT) was formed to continue releases with the hope of establishing a sustainable peregrine population that requires little or no maintenance or manipulation. The (PFRT) hoped to continue urban releases in strategic locations along the Mississippi and inland along known flyways. The group would also evaluate the possibility of releasing birds along the cliffs of NE Iowa.

The 2 falcon pairs in Cedar Rapids and Des Moines nested successfully once again in 1995, marking the third consecutive successful nesting season in Iowa. The Cedar Rapids pair produced four eggs and hatched three young (1F,2M). All three young fledged successfully. One male was later found dead as a result of a collision. The Des Moines pair laid four eggs and hatched three females, all of which fledged successfully.

Iowa has been able to maintain its two nesting falcon pairs in Des Moines and Cedar Rapids. Regionally during 1996, there were 87 territorial pairs of

which 45 nested successfully. The Cedar Rapids pair (still the same male and female) again produced 3 birds (1F,2M), one egg did not hatch. All 3 birds fledged successfully. The Des Moines pair hatched 3 young, but one mysteriously disappeared leaving only 2 males to fledge successfully. This year marked the start of additional falcon releases with the hopes of achieving the goal of 5 breeding pair by the year 2000. The Peregrine Falcon Recovery Team, who generated the funding and volunteers to conduct the releases, spearheaded these releases. Mason City released 7 birds total (3F,4M), two of which (both females) came from Iowa City during the hacking process. Iowa City was in the process of hacking 3 birds (2F,1M), when a wild peregrine showed up at the release site and killed the male. The two remaining females were transported to Mason City to fledge for safety of the birds. There were no releases at Burlington due to mortality prior to placing the birds in the hack box.

The falcon project met with mixed success in 1997. Both falcon pairs returned to nest in Cedar Rapids and Des Moines, however, the Des Moines pair exhibited problems. The female laid her eggs in an alcove on the American Republic Insurance Building that did not have pea gravel in the bottom, so the eggs got wet. We put gravel in, but it was too late. The female abandoned the eggs. She did, however, lay 2 eggs in another alcove and 1 in yet another. To facilitate incubation, we moved the lone egg in with the 2, but later one was kicked out of the scrape, one was cracked and the other was abandoned. Two of the 6 eggs were sent for analysis to try and provide answers for the aberrant behavior of the Des Moines female. On the bright side, the Cedar Rapids pair laid 4 eggs and successfully fledged 2 (both males). Elsewhere in the state, the PFRT continued releases at the Mason City site with 3 young (1F,2M), one of which died from injuries received after colliding with a fence. Iowa City did not release birds in 1997, but Bob Anderson started his efforts of releasing birds on the natural eyries of NE Iowa. He released 4 birds in 2 batches of two (2F,2M) at a hack site situated on the cliffs overlooking the Iowa River near Bluffton. Two of the birds were equipped with radio transmitters, but were not tracked successfully for very long due to the topography interfering with the transmission of the signals.

Things were back on track for 1998. Both falcon pairs nested successfully in Cedar Rapids and Des Moines. The Des Moines pair produced 3 young (1F,2M) as did the Cedar Rapids pair (2F,1M). There was no evidence of additional eggs in Des Moines, however, there were 5 eggs in Cedar Rapids. As for other releases in the state, Mason City concluded its final peregrine release in 1998, sending off 15 falcons (4F,11M) without a hitch and Louisa had its first release with 4 young (3F,1M). Bob Anderson continued his cliff-site releases in 1998. However, he changed the release site from Bluffton to Effigy Mounds National Monument. The latter location is an exceptional bluff overlooking the Mississippi River. Two psuedo-rocked hack boxes were mounted on the bluff face. A total of nine birds (5F,4M) were released from the sight. Radio transmitters on the birds indicated no mortality up to dispersal. Unfortunately, two of the Effigy Mounds birds died during the spring of 1999 due to a possible collision and a drowning.

The Peregrine Falcon Recovery Project had a slight change in direction

during 1997. The decision was made to no longer allow urban releases, except for two grandfathered sites that already had the steps in motion for 1998 releases. Those grandfathered sites were Mason City and Louisa. The Mason City site releases were completed with the hacking of 15 falcons in 1998, and Louisa continued releases through 2000. The reasoning behind this decision was that the transition of falcons nesting in urban areas to natural cliff sites was not occurring as originally thought. In fact, some studies indicate that urban birds may actually be hindering wild nesting since falcons attract falcons. In an effort to return falcons to their historic nesting eyries in Iowa, the Iowa DNR has prioritized cliff-site releases.

Falcon production had mixed success again in 1999. On a down note, the Des Moines pair did not produce any young. The American Republic Insurance Building, where the birds nest, was getting a new roof. Rainy weather pushed construction into peak nesting time, causing too much disturbance for the breeding adults. Cedar Rapids was still a production stronghold with 3 young fledging in 1999. On a positive note, 1999 produced Iowa's third nesting falcon pair at a power smokestack in Lansing. The adults, both from Minnesota successfully produced 3 young (1F,2M). Falcons have been sighted in Mason City, but no nest attempts were documented.

Release efforts continued in Iowa during 1999. Louisa released 8 birds in their second release year. The Raptor Resource Project, headed by Bob Anderson, was awarded a grant by the Iowa DNR to continue release efforts at Effigy Mounds National Monument. He released 9 falcons in 1999. Bob was also granted a FWS permit to take chicks from smokestack nests and release them at cliff sites along the Mississippi River. A new cliff release site was added in 1999. This site, at Eagle Point Park in Dubuque, is also along the Mississippi River. Two rock-lined hack boxes were placed on a bluff overlooking the river. Volunteers released 21 falcon chicks (5F,16M) in 1999 from this site.

2000

In 2000, for the first time in at least 3 decades, wild peregrines were produced on Mississippi River cliffs. At Queen's Bluff, in southeastern Minnesota, 1 young fledged successfully from parents which had been released in Iowa. The female was hacked from Mason City in 1998, and the male was hacked from Effigy Mounds in 1998. In all, there were 5 pairs of peregrines at cliff-sites along the Mississippi River. Thanks to efforts by Bob Anderson, the same pair that nested in 1999 in a nest-box at the Alliant Energy power plant smokestack near Lansing, now nested in a nest-box at a nearby cliff, where peregrines historically nested. They fledged 4 young (3M,1F), but the young female died post fledging. It is worth noting that, according to Bud Tordoff (Tordoff et al 2000), "these were the first young peregrines known to fledge from a cliff nest in the Mississippi River valley since the extirpation of the original population by DDT in the 1950s and 1960s."

Urban nest sites were also successful in 2000. At the American Republic Building in Des Moines, 9-year-old female 13R, nesting here for the eighth year, paired again with 10-year-old male 93T, his seventh year at the site. They produced 4 eggs and fledged 2 male young. In Cedar Rapids at the Firstar Bank nest site, a 2-year-old female, *S/*5

(fledged in Des Moines in 1998) replaced female R49. She mated with 11-year-old male 64X, here for the eighth year. They produced 4 eggs and fledged 4 young (3M,1F). Besides the 3 successful nests, there was also a peregrine pair reported in April at the smokestack nest box at the Louisa Mid-American power plant. Also reported was a 1999 Louisa released male (wearing black/green band) frequenting the Mid-American Energy Co. building in Davenport, and a peregrine with a gold band on the right leg and a red/black band on the left leg was reported in Burlington on July 1 by Conservation Officer, Don Simonson.

Mississippi River peregrine releases continued in 2000, with 19 falcons hacked at the Dubuque cliff site and 6 male peregrines hacked at the Louisa power plant site. All told, there were 164 peregrines hacked from Iowa release sites from 1989-2002. Eighty-four of these birds were released along the Mississippi River, and 62 peregrines were released off limestone bluffs.

2001

Year 2001 saw 5 Iowa peregrine territories. The same returning nesting pairs were identified at Des Moines, Cedar Rapids, and Lansing. The Des Moines pair produced 4 eggs and fledged 3 young (2M,1F). The young female later died after colliding with a window. There were 3 eggs laid and 3 young females fledged at Cedar Rapids. The Lansing pair attempted to nest unsuccessfully on a cliff, and finally laid 4 eggs (which did not hatch) in a nest box. An unidentified pair of peregrines attempted to nest beneath the Centennial Bridge in Davenport. The female is a sub-adult wearing a black/green band, and it is not known if the male is banded. Young falcons were heard food-begging beneath the bridge, but it is not known if any young fledged successfully (unverified report indicated one). A fifth pair of falcons held a nesting territory at the Louisa generating plant smokestack nest-box. The female hatched in 1999 from a smokestack box in Minneapolis, and the male has not been identified. The stage is set for 5 nesting pairs in 2002.

2002

In 2002 six falcon territories were reported with five sites successfully fledging young. At Cedar Rapids four-year-old female *S/*5, nesting here for the third time, and thirteen-year-old male 64X (identified previously as 64T), here for the tenth year, produced four eggs, hatched three and fledged two females and a male.

The Des Moines pair once again laid three eggs on the east side of the American Republic Insurance bldg. However, the eggs disappeared as hatch date drew near. In late June an egg was discovered on the west side of building which hatched. A lone male was banded July 30 and successfully fledged in early August.

The Lansing cliff site was active in 2002 where the same pair successfully fledged two young, a male and a female. The adult female X/*D, fledged in 1998 at NSP Sherco, Becker, Minnesota and here for the first time, paired with five-year-old male *T/M, nesting here for the fourth year. The falcon box on the bluff, across from the Alliant Energy plant placed by Bob Anderson was a suitable backdrop as historic falcon banders gathered to assist and witness event. It had been 44 years since Dan Berger, Jack Oar, Jim Grier, Jack Oberg, Dave Seal, and Chuck Sindelar banded falcons at historic eyries. This year they were assisted by Dave

Kester, banding two young.

In the Quad Cities the pair that previously occupied the Centennial Bridge nested in a falcon box placed by falconer, Tom Deckert. Three-year-old female 8/*E, hacked in 1999 at Muncie, Indiana paired with three-year-old male P/D, hacked in 1999 at Dubuque, Iowa. The MidAmerican Insurance building hosted three young, two females and a male in downtown Davenport. All successfully fledged with minimal intervention from humans.

A new falcon site came on line this year. A box affixed to the smokestack of the Louisa Generating Station near Muscatine was used. The female Z/V fledged in 1999 at NSP Riverside, Minneapolis, Minnesota. The tiercel has not been identified. One young male successfully fledged.

A sixth falcon territory occurred at the Holnam Cement Plant at Mason City. Falconer Lowell Washburn who hacked 25 young from the site between 1996 – 1998, reported a male was seen intermittently throughout the summer.

Also in 2002 eight young falcons were hacked at the Duane Arnold nuclear facility near Palo, Iowa. Bob Anderson with Raptor Research Project coordinated the placement of four young. Meanwhile four young at a smokestack box near Alma, Minnesota were stranded when an untimely death of the adult male occurred at that site. Plus, the female was discovered injured and unable to provide for young. The four were relocated to the Palo site and all eight successfully fledged.

2003

In 2003 there were seven territories in Iowa. Mason City territory at Holnam Plant was inactive, but two new territories occurred in Iowa. Falcon activity was noted at nestbox at Alliant Plant near Chillicothe in Wapello Co. An adult peregrine was observed and a scrap was created in nestbox. At Quad Cities under I-80 bridge, a fledgling falcon was photographed and according to falconer Lowell Washburn an eyrie was presumed to have occurred under bridge. Adults were not identified at either site.

At Des Moines same adults fledged four young from second, NW alcove of American Republic building. At Cedar Rapids same adults fledged four young. At Louisa female Z/V and unknown male fledged three young.

Near Lansing the wild pair attempted to nest on a natural ledge. Two young hatched but had disappeared by banding time. Falconers Bob Anderson and Dave Kester believed raccoon predation destroyed nest. Raccoon sign was observed in area and access by land was possible.

Quad Cities female 8/*E and unidentified male produced four young under Centennial bridge. Young were relocated to natural bluff near Bluffton and hacked by Bob Anderson. All four survived and were observed throughout summer.

Iowa falcons produced at least 16 young this year making it a banner year for falcon production.

2004

In 2004, Bob Anderson reported the pair at Lansing cliff, Allamakee County, hatched young but none were present at banding. A second, wild nesting pair was reported downstream by Dave Kester, on a Mississippi River cliff at Waukon Jct., Allamakee County. There were 2 eggs but no young produced. Female at this site was identified as Lora (48/E), hatched at Xcel Energy, Monticello, MN in 2003.

Male is two-year-old 19/M Dairyland Cooperative at Alma, Wisconsin 2002. Anderson believed only male was incubating.

A scrape was present at nest box on smokestack at Alliant Energy Plant at Chillicothe, Wapello County, but no young produced. Two unidentified peregrines occupied site.

Danny Akers, a reliable birder, reported a peregrine pair copulating about one mile southwest of Guttenberg, Clayton County, on April 18, but despite subsequent searches in the area, no eyrie was discovered.

At state Capitol bldg in Des Moines female 39/E, NSP Riverside, Minneapolis 2003, has paired with 93T and is actively defending site from intruders.

At American Republic Insurance bldg. at Des Moines, Polk Co. Iowa, female 8/*T (produced three young) (Colonnade bldg. 2002) here for her first nesting attempt paired with fourteen-year-old male 93T (produced 27 young), his twelfth year at this site. Four eggs were laid and three males fledged. One immature male, D/06, was retrieved dead from collision with Ruan bldg. in July.

At Louisa Generating Plant, Louisa County, Jim Haack, Mid-American Energy, reports that five-year-old female Murphy Z/V(produced eight young), here for fourth year, and an unidentified male fledged four, three males and a female. Female 62/D recently was trapped inside a building and died of apparent heat exhaustion.

At US Bank bldg at Cedar Rapids, Linn Co. Iowa, six-year-old female ***S/ ***5 (produced 13 young) nesting here for fifth time and 13 year-old male 64X (produced 38), here for 12th year, produced four eggs, hatched four, and fledged three, one male and two females. Female 63/D was found dead. It was feared no young survived at this site as shortly after fledging, adults were sighted repeatedly but no young were seen.

At Davenport, Scott County, a pair once again nested at Centennial Bridge on eastern section of middle span. Three young were reported before fledging, but neither adult was identified. Also, no activity was reported at 2003 territory at I80 Bridge near Bettendorf.

It appears there is a new territory at Burlington, Des Moines County, beneath another Mississippi River Bridge. Former falconer, Lee Eberly, reported at least one, and possibly two peregrines were seen flying to and from under the bridge in mid-June, and vocalizations were heard 4 or 5 times. There has been peregrine activity noted at this site in the past. No peregrines were identified, and it is unknown if there was an active nest.

In summary, young fledged was down from 16 in 2003 to 13 in 2004 at four successful sites. There was evidence of peregrine territorial activity at ten sites.

2005

In 2005 ten territories had seven successful fledgings with 21 young produced. At Firstar Bank (US Bank), Cedar Rapids, Linn County, Iowa, Jodeane Cancilla, Macbride Raptor Project, reports that seven-year-old female *S/*5 (produced 16 young), nesting here for the sixth year, and two-year-old male 78/E (produced 3), here for his first nesting, produced four eggs, hatched all four, and fledged three young, two males and a female.

American Republic, Des Moines, Polk County, Iowa. 15-year-old male 93T (31 young), his 13th year at this site, paired for the second year with four-year-

old female Ellie b/g 8/*T, fledged in 2001 at Colonnade, Minneapolis, Minnesota. They produced four eggs, four were banded, and fledged three young, two females and one male. One male was found dead, having fallen from eyrie. On July 22, female 8/*T was found with a wing injury that precludes further flying, although she lives on in captivity. Male 93T has sired 31 young in his long career here.

MidAmerican Energy Corporate Headquarters, Davenport, Scott County, Iowa. Dave Sebben reports two six-year-olds, female 8/*E, fledged at Muncie, Indiana, in 1999, paired with male P/D, fledged at Dubuque, Iowa, in 1999, produced one young. It was banded but died when hit by a car after fledging.

At Louisa, Louisa County, Iowa, Jim Haack, MidAmerica Energy, reports that an unidentified female and an unidentified male, both banded, fledged four young, two males and two females. This is the fourth year of successful nesting at this site.

Leo's Bluff, Waukon Junction, Allamakee County, Iowa. This is second year for this cliff site**.** Dave Kester and Bob Anderson report that two-year-old female Lora 48/E paired with three-year-old Brady 19/M, both here for the second year, and nested a half mile upstream from the 2004 site. They fledged two young, one each sex, from a cliff with no nest box, the first such cliff nest in Iowa in over 40 years.

Alliant Energy Lansing / Lansing cliff, Lansing, Allamakee County, Iowa. Bob Anderson, Raptor Resource Project, and Dave Kester report that an unidentified adult female with a b/r band paired with eight-year-old male Alpha *T/M (produced 14 young), nesting here for the seventh year. The site has had an interesting history. Falcons were first attracted to nest in a box on a nearby stack, where they fledged young in two seasons. The stack box was then removed and a box placed on the nearby cliff. Young were fledged in 2002. However, in 2003 and 2004, the falcons used a ledge instead of the box and lost their young to raccoon predation. This year, Kester and Anderson placed a new box on the stack, from which five young peregrines were fledged, three males and two females.

Alliant Energy Plant, Chillicothe, Wapello County, Iowa, Judi Johnson reports six-year-old female Z/V (produced 10 at Louisa and Chillicothe) and an unidentified male, judged by plumage to be two years old, produced four eggs and fledged two young. Female Z/V has relocated to this site from Louisa Generating Plant.

I80 Bridge, Quad Cities, Scott County, Iowa, had peregrine activity again this year. An adult pair is on site, but no young were found. A nest tray was installed under the bridge on Iowa side of center span of bridge. This bridge is 12 miles upstream from Centennial Bridge.

Mississippi bridge, Burlington, Des Moines County, Iowa. John Rutenbeck reports seeing and hearing two peregrines flying under the bridge in mid-June. Peregrine activity has been noted here in past years. There was no proof of a nest this year.

State Capitol, Des Moines, Polk County, Iowa, female Fast Track b/g 39/E, fledged in 2003 at NSP Riverside, Minneapolis, Minnesota, here in 2004 and early spring this year, was not seen through the nesting season. Adult male, T93, from downtown nest site has been soaring and perching on west side of Capitol, throughout summer.

Seven successful sites produced 21 young in 2005. There were three additional sites with peregrine pairs for a total of ten territories this year.

There were some downturns in Iowa's peregrine population in 2006. However there were ten territories reported and five successful sites that produced eleven young. At Leo's Bluff near Waukon Junction, IA, both of the adult falcons and their young mysteriously disappeared according to bob Anderson. When he and Dave Kester rappelled into the eyrie, one pipped egg and fragments from three other eggs that indicated a normal hatch were discovered. However, there were no eyas falcons or defending adults. Other cliffs in that area of the river were searched on several occasions without finding either of the adult falcons. This is very strange and researchers are at a loss to explain what could have happened.

The adult falcons at the Lansing, IA power plant moved back to the nearby cliff this year, most probably due to a major construction project that took place near the stack. In past seasons, these falcons have lost their young around ten days of age to raccoons at this ledge. On 5/17/06, a large contingency of volunteers met at this cliff to initiate efforts to repel raccoons from the ledge site. However, they were too late. One set of raccoon tracks and eggshell fragments were discovered at the eyrie.

Another disappointment occurred in Des Moines where an unidentified female laid eggs at American Republic Insurance bldg. onto cold concrete. Four eggs were discovered and pea gravel added under them but they did not hatch.

On a brighter note at Cedar Rapids US Bank bldg. female *S/5* here for eighth year (produced 20 young) and three-year-old male 78/E (produced seven young) here for second year. Pair produced four young – three males and one female.

At MidAmerican Energy Corporate Headquarters, Davenport, Scott County, Iowa. Dave Sebben reports two seven-year-olds, female 8/*E, fledged at Muncie, Indiana, in 1999, paired with male P/D, fledged at Dubuque, Iowa, in 1999, produced two young.

At Louisa Generating Station, Jim Haack, MidAmerican Energy, reports that an unidentified female and an unidentified male, both banded, fledged two females and one male. There was one dead young in box. This is the fifth year of successful nesting at this site.

Alliant Energy Plant, Chillicothe, Wapello County, Iowa, Judi Johnson reports seven-year-old female Z/V (produced 10 at Louisa and Chillicothe) and an unidentified male and fledged one young.

At Great River Bridge local birder, Hal Geren, reported two adult and one young throughout July.

At I 280 Bridge at Quad Cities, local birder Kelly McKay reported pair of falcons on west pier (Iowa side) of bridge. Two eggs on concrete were discovered and placed in a nest tray with pea gravel. There was no further activity reported at this site.

At I 80 bridge in Quad Cities a pair of peregrines were defending the bridge but no eggs were discovered. Nest tray on Iowa side of bridge had not been used.

In summary there were ten territories with five successful pairs and eleven young produced in 2006.

2007

Spring 2007 held great promise for peregrine nesting in Iowa. A definition of

success might include as many wild-produced young in a year that were hacked in any given year, since project began in 1989. In 1999 at Eagle Point Park in Dubuque, 21 peregrines were released by Lowell Washburn, Tom Deckert and Dubuque College. This year twelve territories with eight successful nests produced 23 young.

In Des Moines four young were produced at American Republic Insurance bldg. (37 young since ’93) New male at this site is 63/B, (Woodman Tower , Omaha, NE. ’04)(four young ’07). There is a second territory at State Capitol.

In Cedar Rapids a brood of five young were reported by Theresa Chapel at USBank (50 young since ’93). Female *S/5* (Des Moines, IA ’98) here for ninth year (produced 25 young) and four-year-old male 78/E (Kokomo, IN. ’03) here for third year (produced 12 young) produced five young, all males.

At Lansing cliff (14 young since ’99), Bob Anderson boarded up the power plant nest box and installed a cliff nest box here on 3/30/07. Raccoon predation has been a problem at this location, but it was believed the box would provide a successful nest. Raccoon predation occurred again this year.

At Leo’s Bluff near Waukon Jct. (four young since ’05) Bob Anderson reported that last year falcons hatched one egg successfully, but the entire family mysteriously disappeared in mid-May. This year, the nest was successful with two young. Adult female 66/A (St. Louis ’05) and male is unbanded. First nested here 2004.

At Clinton, Iowa, (one young ’07) unidentified pair produced one young at new site. Site is ML Kapp Generating Station with Alliant Energy. This site is located at southern extent of historic peregrine nesting range along Mississippi flyway in Iowa.

At I 80 Bridge unidentified pair defended territory, but no eyrie or young detected. Nest tray had not been used and is now located on upstream side on Illinois side of channel.

At MidAmerican HQ (12 young since ’02) in Quad Cities same eight-year-old pair 8/*E (Muncie, IN ’99) and P/D (Dubuque, IA ’99) here for sixth year (two on Centennial Bridge) laid four eggs in rain gutter. Eggs were placed in nest tray but did not hatch. Female recycled and laid four eggs in nest box, but did not successfully hatch.

At I 280 bridge (four young ’07) near Quad Cities unidentified pair produced four young at this new site. Young were banded by Jodeane Cancilla of Macbride Raptor Project with assistance from Illinois DOT officials.

At Louisa Generating Station (19 young since ’02) Jim Haack reported four young successfully fledged from 06/A female (St. Louis, MO. ’05) and unidentified male for sixth year.

At Burlington, Great River Bridge (at least two young since ’04) an unidentified pair, here for fourth year fledged at least one young.

At Chillicothe (five young since ’05), Ottumwa Generating Station with Alliant Energy, Judi Johnson reports eight year-old female Z/V (NSP Riverside, Mpls. MN. ‘99) (produced 12 at Louisa and Chillicothe) and an unidentified male fledged two young.

In summary twelve territorial pairs provided eight successful nests with 23 young produced in 2007.

2008

Spring 2008 began inauspiciously enough, but climate conditions resulted in a tough

year for some peregrine pairs in Iowa. This year thirteen territories with eight successful nests produced 20 young.

In Des Moines three young were produced at American Republic Insurance bldg. (40 young since ’93) Male at this site is 63/B, (Woodman Tower , Omaha, NE. ’04)(seven young ’07). Female is unbanded.

A second territory at State Capitol produced two young. Female 39/E (NSP Riverside Plant, Minneapolis MN) has been at Capitol since 2003. Male is unbanded.

In Cedar Rapids a brood of two young were reported by Theresa Chapel at USBank (52 young since ’93). Female *S/5* (Des Moines, IA ’98) here for tenth year (produced 27 young) and five-year-old male 78/E (Kokomo, IN. ’03) here for fourth year (produced 14 young).

At Lansing cliff (17 young since ’01), Bob Anderson reports falcon pair back in Alliant Energy smokestack box and fledged three.

At Waukon Jct. (seven young since ’04) Bob Anderson reported that pair relocated up stream to Gitta’s Bluff. Nest was successful with three young. Adult female *K/*W (John Latsch Park, MN ’06) and male is unbanded.

At Clinton, Iowa, (one young ’07) unidentified pair produced no young at this site. Site is ML Kapp Generating Station with Alliant Energy. This site is located at southern extent of historic peregrine nesting range along Mississippi flyway in Iowa.

At I 80 Bridge unidentified pair defended territory, but no eyrie or young detected. Nest tray had not been used and is now located on upstream side on Illinois side of channel.

At MidAmerican HQ (13 young since ’02) in Quad Cities same nine-year-old pair 8/*E (Muncie, IN ’99) and P/D (Dubuque, IA ’99) here for seventh year (two on Centennial Bridge) laid three eggs in nest box. One young fledged.

At I 280 bridge (four young ’07) near Quad Cities unidentified pair produced nested on Illinois side of bridge. Flood conditions prevented exploring this site in ’08.

At Louisa Generating Station (23 young since ’02) Jim Haack reported four young successfully fledged from 06/A female (St. Louis, MO. ’05) and unidentified male for seventh year.

At Burlington, Great River Bridge (at least four young since ’04) an unidentified pair, here for fifth year fledged two young.

At Chillicothe (four young since ’05), Ottumwa Generating Station with Alliant Energy, Judi Johnson reports nine-year-old female Z/V (NSP Riverside, Mpls. MN. ‘99) (produced 12 at Louisa and Chillicothe) and an unidentified male were unsuccessful. Three eggs were discovered June 13, but area was subjected to violent storms later in the month.

There is a new pair occupying Agri-Bunge grain elevator at McGregor, Iowa. Female is a brown bird immature.

In summary thirteen territorial pairs provided eight successful nests with 20 young produced in 2008.

2009

Spring 2009 heralded the year Peregrine Falcons were upgraded from Endangered to a Species of Special Concern status in Iowa. This year thirteen territories with nine successful nests produced 25 young.

In Des Moines four young were produced at American Republic Insurance bldg. (44 young since ’93) Male at this site is 63/B, (Woodman Tower , Omaha,

NE. ’04)(11 young ’07) Female is 39E (NSP Riverside plant ‘03) here for first year (produced six young two at capitol in ‘08).

A second territory at State Capitol produced four young. Female (six young) and male are unbanded (four young).

In Cedar Rapids a brood of one young was reported by Theresa Chapel at USBank (53 young since ’93). Female *S/5* (Des Moines, IA ’98) here for eleventh year (produced 28 young) and six-year-old male 78/E (Kokomo, IN. ’03) here for fifth year (produced 15 young).

At Lansing cliff (20 young since ’01), Bob Anderson reports falcon pair back in Alliant Energy smokestack box and fledged three.

At Waukon Jct. (seven young since ’04) Bob Anderson reported that pair relocated back to Leo’s Bluff. Nest was unsuccessful. Adult female *K/*W (John Latsch Park, MN ’06) and male is unbanded.

At Clinton, Iowa, (three young ’07) unidentified pair produced two young at this site. Site is ML Kapp Generating Station with Alliant Energy. 46D was photographed at ADM and is possibly at ML Kapp. This site is located at southern extent of historic peregrine nesting range along Mississippi flyway in Iowa.

At I 80 Bridge unidentified pair defended territory, but no eyrie or young detected. Nest tray had not been used and is now located on upstream side on Illinois side of channel.

At MidAmerican HQ (15 young since ’02) in Quad Cities same ten-year-old pair 8/*E (Muncie, IN ’99) and P/D (Dubuque, IA ’99) here for eighth year (two on Centennial Bridge) laid three eggs in nest box. Two young fledged.

At I 280 bridge (four young ’07) near Quad Cities unidentified pair nested on Illinois side of bridge.

At Louisa Generating Station (27 young since ’02) Jim Haack reported four young successfully fledged from 06/A female (St. Louis, MO. ’05) and unidentified male for eighth year.

At Burlington, Great River Bridge (at least four young since ’04) an unidentified pair, here for sixth year fledged one young.

At Chillicothe (nine young since ’05), Ottumwa Generating Station with Alliant Energy, Judi Johnson reports ten-year-old female Z/V (NSP Riverside, Mpls. MN. ‘99) (produced 16 at Louisa and Chillicothe) and an unidentified male were successful. Four young fledged.

In summary thirteen territorial pairs provided nine successful nests with 25 young produced in 2009.

2010

Spring 2010 was the year Peregrine Falcons were considered a Species of Special Concern in Iowa and no longer endangered. It should be noted that nesting pair on I 280 bridge near Davenport have located on the Illinois side the last three years and are no longer included in Iowa data base. This year fourteen territories with ten successful nests produced 21 young.

In Des Moines two young were produced at American Republic Insurance bldg. (46 young since ’93) Male at this site is 63/B, (Woodman Tower , Omaha, NE.’04)(13 young ’07) Female is 39E (NSP Riverside plant ‘03) here for second year (produced eight young, two at Capitol in ‘08).

A second territory at State Capitol produced one young. Unbanded female (seven young) and male 39/A (American

Republic ’08) here for first year were successful above east portico.

In Cedar Rapids a brood of four young was reported by Theresa Chapel at USBank (57 young since ’93). Female *S/5* (Des Moines, IA ’98) here for twelth (produced 32 young) and seven-year-old male 78/E (Kokomo, IN. ’03) here for sixth year (produced 19 young).

At Lansing cliff (22 young since ’01), Bob Anderson reports falcon pair back in Alliant Energy smokestack box and fledged two.

At Waukon Jct. (seven young since ’04) Bob Anderson reported that pair relocated back to Leo’s Bluff. Nest was unsuccessful. Adult female *K/*W (John Latsch Park, MN ’06) and male is unbanded.

At MacGregor Bob Anderson reports Agri Bunge Elevator has unidentified pair. Thre young were produced.

At Clinton, Iowa, (three young ’07) unidentified pair were not successful at this site. Site is ML Kapp Generating Station with Alliant Energy. 46D was photographed at ADM and is possibly at ML Kapp. This site is located at southern extent of historic peregrine nesting range along Mississippi flyway in Iowa.

At ADM plant in Clinton, new nesting pair produced three males. Female is 35/M and female is 83/M (Cedar Rapids ’03)

At I 80 Bridge unidentified pair defended territory, but no eyrie or young detected. This bridge was under reconstruction this year but pair did not relocate to nest box on MidAmerican Riverside smokestack just downstream.

At MidAmerican HQ (18 young since ’02) in Quad Cities same eleven-year-old pair 8/*E (Muncie, IN ’99) and P/D (Dubuque, IA ’99) here for ninth year (two on Centennial Bridge) laid four eggs in nest box. Three young fledged.

At I 280 bridge (four young ’07) near Quad Cities unidentified pair nested on Illinois side of bridge. We will no longer include this pair with Iowa totals.

At Louisa Generating Station (28 young since ’02) Jim Haack reported one young successfully fledged from 06/A female (St. Louis, MO. ’05) and unidentified male for ninth year. An earlier hatch of three young had disappeared by June 11. A new nest site at the plant near area that was used for releases produced one young.

At Burlington, Great River Bridge (at least five young since ’04) an unidentified pair, here for seventh year fledged one young.

At Chillicothe (11 young since ’05), Ottumwa Generating Station with Alliant Energy, Judi Johnson reports eleven- year-old female Z/V (NSP Riverside, Mpls. MN. ‘99) (produced 18 at Louisa and Chillicothe) and an unidentified male were successful. two young fledged.

There were two new bridge pairs to be aware of at Dubuque and Muscatine this year. At Dead Cow bluff near Lansing bob Anderson reported dawn from young but no falcons in June.

In summary fourteen territorial pairs provided ten successful nests with 21 young produced in 2010.

2011

Spring 2011 had intense weather events. Most notably adverse conditions were blamed for no production from falcon pairs in NE Iowa cliff region. It should be noted that nesting pair on I 280 bridge near Davenport will be included in the Iowa data base. This year 16

territories with nine successful pairs produced 22 young.

In Des Moines four young were produced at American Republic Insurance bldg. (50 young since ’93). Male at this site is 63B, (Woodman Tower , Omaha, NE.’04)(17 young ’07) Female is 39E (NSP Riverside plant ‘03) here for third year (produced 12 young, two at Capitol in ‘08).

A second territory at State Capitol (eight young since 2009) produced two young. Unbanded female (six young) and male 39/A (American Republic ’08) here for second first year (six young ’10) were successful above east portico.

In Cedar Rapids a brood of four young was reported by Theresa Chapel at USBank (61 young since ’93). Female *S/5* (Des Moines, IA ’98) here for thirteenth (produced 36 young) and eight-year-old male 78/E (Kokomo, IN. ’03) here for seventh year (produced 23 young).

At Guider’s Bluff aka Dead Cow Bluff (unidentified active pair since 2010) was not successful according to Bob Anderson.

At Lansing Cliff aka Achaflaya Bluff (22 young since ’01), Bob Anderson reports falcon pair on cliff but were unsuccessful.

At Waukon Jct. (seven young since ’04) Bob Anderson reported that pair relocated back to Leo’s Bluff. Nest was unsuccessful. Adult female *K/*W (John Latsch Park, MN ’06) and male is unbanded.

At MacGregor reports Bunge Elevator (Three young since 2010) Bob Anderson reported unidentified pair was unsuccessful.

At Dubuque Bridge (Two young since 2010) Roger Scholbrock reports two young fledged from unidentified pair.

At Clinton, Iowa, (Three young since ’07) unidentified pair were not successful at this site. Site is ML Kapp Generating Station with Alliant Energy. 46D was photographed at ADM and is possibly at ML Kapp. This site is located at southern extent of historic peregrine nesting range along Mississippi flyway in Iowa.

At ADM plant in Clinton (Five young since ’10), nesting pair produced two males. Female is 35/M (Kansas City 2005) (Five young since ’10) and female is 83/M (Cedar Rapids ’03)(Five young since ’10).

At I 80 Bridge unidentified pair defended territory, but no eyrie or young detected.

At MidAmerican HQ (19 young since ’02) in Quad Cities same twelve-year-old pair 8/*E (Muncie, IN ’99) and P/D (Dubuque, IA ’99) here for tenth year (two on Centennial Bridge) laid three eggs in nest box. One young fledged.

At I 280 bridge (five young ’07) near Quad Cities unidentified pair nested on Illinois side of bridge. Iowa will record data at this site.

At Louisa Generating Station (28 young since ’02) Jim Haack reported no young successfully fledged. Female06/A female (St. Louis, MO. ’05) and unidentified male for tenth year.

At Burlington, Great River Bridge (at least five young since ’04) an unidentified pair, here for eigth year fledged two young.

At Chillicothe (14 young since ’05), Ottumwa Generating Station with Alliant Energy, Judi Johnson reports new pair five year old female N23 (Sharon Cargill Plant Jefferson Co. WI 2006)(three young since 2011) and male 26/B (Am. Rep. Des Moines 2009) (three young since 2011). Three young fledged.

In summary 16 territorial pairs provided nine successful nests with 22 young produced in 2011.

2012

Spring 2012 came early from very mild winter season. It should be noted that nesting pair on I 280 bridge near Davenport have located on the Illinois side the last five years and are no longer included in Iowa data base. This year 15 territories with 13 successful nests produced 34 young.

In Des Moines three young were produced at American Republic Insurance bldg. (49 young since ’93) Male at this site is 63/B, (Woodman Tower, Omaha, NE.’04)(16 young ’07) Female is 39E (NSP Riverside plant ‘03) here for second year (produced 11 young, two at Capitol in ‘08).

A second territory at State Capitol produced one young. Unbanded female (eight young) and male 39/A (American Republic ’08) here for third year were successful above east portico.

In Cedar Rapids a brood of three young was reported by Theresa Chapel at USBank (60 young since ’93). Female *S/5* (Des Moines, IA ’98) here for fourteenth year (produced 35 young), and nine-year-old male 78/E (Kokomo, IN. ’03), here for eighth year (produced 22 young).

A new site at Aggie’s Bluff two miles upstream from Lansing an unidentified pair produced four young.

At Lansing cliff (26 young since ’01), Bob Anderson reports falcon pair back in Alliant Energy smokestack box and fledged four.

At Waukon Jct. (seven young since ’04) Bob Anderson reported that pair relocated back to Leo’s Bluff. Nest was unsuccessful. Adult female *K/*W (John Latsch Park, MN ’06) and male is unbanded.

At MacGregor Bob Anderson reports Bunge America Elevator has unidentified pair. Three young were produced.

At Dubuque Wisconsin Bridge Roger Scholberg unidentified pair here for third reports one young produced from.

At Clinton, Iowa, (six young ’07) unidentified pair were successful at this site with three young. Site is ML Kapp Generating Station with Alliant Energy. 46D was photographed at ADM and is possibly at ML Kapp. This site is located at southern extent of historic peregrine nesting range along Mississippi flyway in Iowa.

At ADM plant in Clinton, nesting pair produced two (seven young since 2010.) Female is 35/M and female is 83/M (Cedar Rapids ’03)

At I 80 Bridge unidentified pair defended territory, but no eyrie or young detected.

At MidAmerican HQ (21 young since ’02) in Quad Cities same thirteen-year-old pair 8/*E (Muncie, IN ’99) and P/D (Dubuque, IA ’99) here for 11th year (two on Centennial Bridge) laid four eggs in nest box. Three young fledged.

At I 280 bridge (four young ’07) near Quad Cities unidentified pair nested on Illinois side of bridge. We will no longer include this pair with Iowa totals.

At Louisa Generating Station (30 young since ’02) Jim Haack reported two young successfully fledged from 06/A female (St. Louis, MO. ’05) and unidentified male for eleventh year. A new nest site at the plant near area that was used for releases produced one young.

At Burlington, Great River Bridge (at least seven young since ’04) an

unidentified pair, here for ninth year fledged one young.

At Chillicothe (15 young since ’05), Ottumwa Generating Station with Alliant Energy, Judi Johnson reports eleven- year-old female Z/V (NSP Riverside, Mpls. MN. ‘99) (produced 22 at Louisa and Chillicothe) and an unidentified male were successful – four young fledged.

In summary 15 territorial pairs provided 13 successful nests with 34 young produced in 2012.

2013

Spring 2013 came late as conditions were very wet and cold. There was snow in the northern half of the state on May 3. It should be noted that nesting pair on I 280 bridge near Davenport have located on the Illinois side the last five years and are no longer included in Iowa data base. This year 15 territories with 14 successful nests produced 32 young.

In Des Moines **two** young were produced at American Republic Insurance bldg. (51 young since ’93) Male at this site is 63/B, (Woodman Tower, Omaha, NE.’04)(18 young ’07) Female is 39E (NSP Riverside plant ‘03) here for third year (produced 13 young, two at Capitol in ‘08).

A second territory at State Capitol (11 young since ‘08) produced **three** young. Unbanded female (9 young) and male 39/A (American Republic ’08) here for third year were successful above east portico. Male was injured and died so there will be a replacement male at this site in 2014.

In Cedar Rapids a brood of **three** young was reported by Theresa Chapel at USBank (63 young since ’93). Female *S/5* (Des Moines, IA ’98) here for fifteenth (produced 38 young) and ten-year-old male 78/E (Kokomo, IN. ’03) here for ninth year (produced 25 young).

The site at Aggie’s Bluff two miles upstream from Lansing an unidentified pair produced **three** young their second year at this site (produced seven young since 2012.)

At Lansing cliff (29 young since ’99), Bob Anderson reports falcon pair back in Alliant Energy cliff box and fledged **three**.

At Waukon Jct. (seven young since ’04) Bob Anderson reported that pair relocated back to Leo’s Bluff. Nest was **unsuccessful**. Adult female *K/*W (John Latsch Park, MN ’06) and male is unbanded.

At MacGregor Bob Anderson reports Bunge America Elevator (12 young since 2008) has unidentified pair. **Three** young were produced.

At Dubuque Wisconsin Bridge (four young since ’10) Roger Scholberg unidentified pair here for fourth year reports **one** young produced.

At Clinton, Iowa, (eight young ’07) unidentified pair were successful at this site with **three** young. Site is ML Kapp Generating Station with Alliant Energy. 46D was photographed at ADM and is possibly at ML Kapp. This site is located at southern extent of historic peregrine nesting range along Mississippi flyway in Iowa.

At ADM plant in Clinton, nesting pair produced **two** (nine young since 2010.) Female is 35/M and female is 83/M (Cedar Rapids ’03)

At I 80 Bridge (2003) unidentified pair produced **two** young.

At MidAmerican HQ (22 young since ’02) in Quad Cities same fourteen-year-old pair 8/*E (Muncie, IN ’99) and P/D (Dubuque, IA ’99) here for 12th year

(two on Centennial Bridge) laid four eggs in nest box. **One** young fledged.

At Louisa Generating Station (33 young since ’02) Jim Haack reported young successfully from 06/A female (St. Louis, MO. ’05) and unidentified male for twelfth year. Pair produced **three** young from smaller nest box.

At Burlington, Great River Bridge (at least eight young since ’04) an unidentified pair, here for tenth year fledged **one** young.

At Chillicothe (17 young since ’05), Ottumwa Generating Station with Alliant Energy, Judi Johnson reports female b/g N23 (six young since ’12) and male b/r B26 (six young since ’12) were successful – **two** young fledged. This is their second year.

In summary 15 territorial pairs provided 14 successful nests with 32 young produced in 2013.

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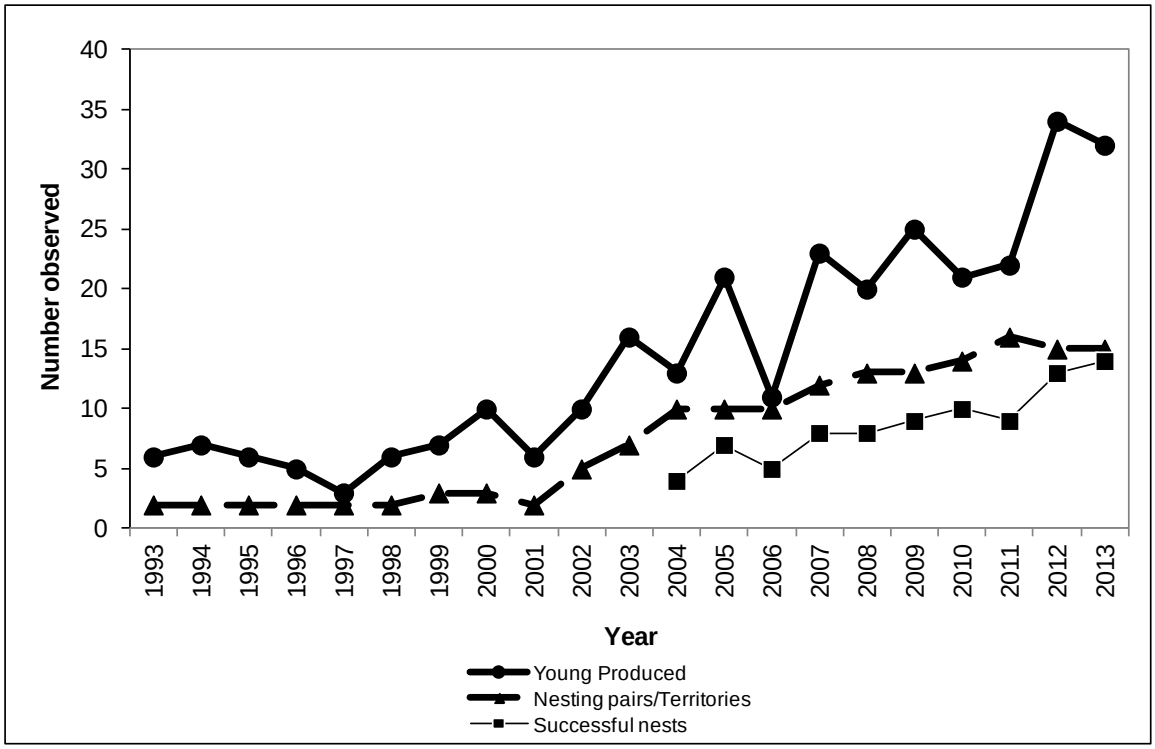
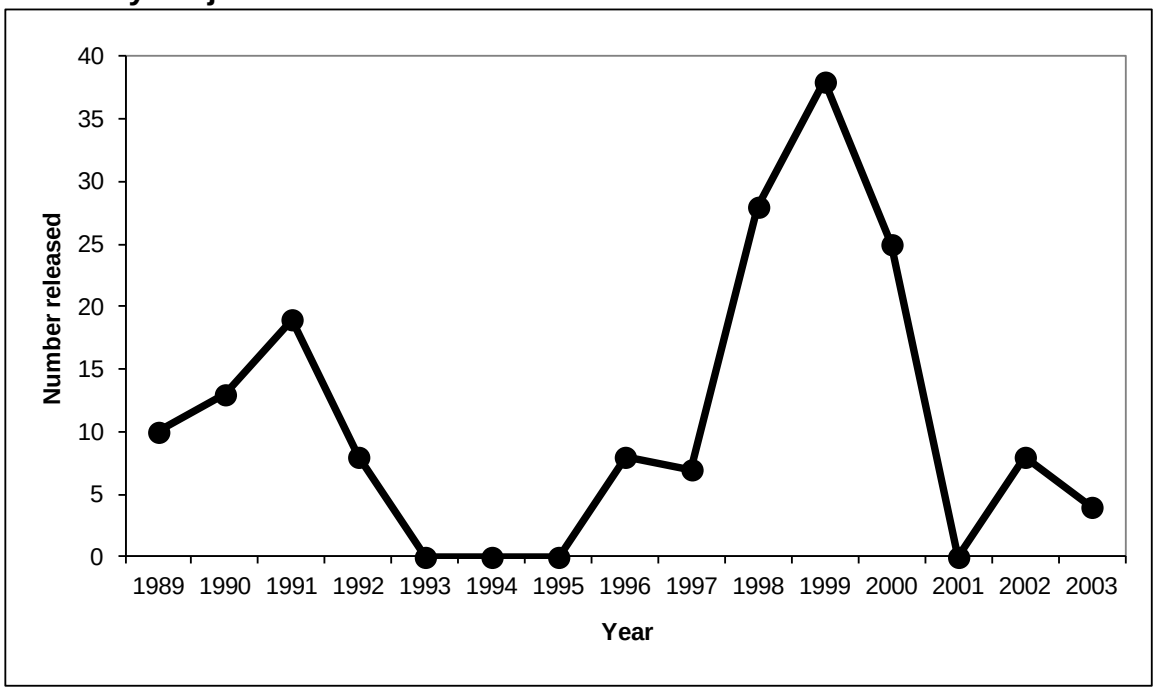
Young Peregrine falcons produced from known Iowa nesting pairs 1993 - Present.



Peregrine falcons released in Iowa as part of the Midwestern Peregrine Recovery Project.



GREATER PRAIRIE CHICKEN RESTORATION

HISTORICAL REVIEW

Greater prairie chickens (*Tympanuchus cupido pinnatus*) commonly nested throughout Iowa from the time of European settlement in the mid-nineteenth century until about 1900. Numbers peaked about 1880 when most of Iowa was a mosaic of small grainfields, hayfields, pasture, and native prairie, which provided ideal habitat conditions (Ehresman 1996). During the late nineteenth century, prairie chickens were the most abundant gamebird on Iowa prairies. Hunting and trapping them for food and market were very important to settlers. Bags of 25 to 50 a day were common, and some hunters took up to 200 per day.

By 1878, Iowa lawmakers were concerned that prairie chickens were being over-harvested. The Iowa Legislature passed a law that year limiting the daily bag of prairie chickens to 25 birds per person. This is believed to be the first time that bag limits were used as a tool to regulate the harvest of game in the United States. Additional restrictions followed, and the last open season for prairie chickens in Iowa was held in 1915 (Stempel and Rodgers 1960).

As agricultural land use intensified, populations of prairie chickens started to decline. By the 1930's, most prairie chickens found in the northwestern part of the state were migrant winter flocks. By the 1950's, the only known nesting prairie chickens were in Appanoose, Wayne, and Ringgold Counties in southern Iowa. The last verified nesting prior to reintroduction attempts was in Appanoose County in 1952 (Stempel and Rodgers 1960).

RESTORATION

First Reintroduction

In the early 1980's, the Iowa Conservation Commission, now the Iowa Department of Natural Resources (IDNR), attempted to restore prairie chickens to west central Iowa. The IDNR negotiated with the Kansas Fish and Game Commission (KFGC), now Kansas Department of Wildlife and Parks (KDWP), to trade wild turkeys for 100 prairie chickens (Table 8.1). The release site was located in the Loess Hills east of Onawa, Monona County (Fig. 8.1). This is an area of steep to moderately rolling bluffs and hills bordering the Missouri River valley. These hills have large expanses of grassland interspersed with brush and small crop fields.

Fifty-three prairie chickens were released in 1980. Results from the first release were mixed. A large number of chickens were observed in the release area the following day; however, sightings thereafter were sporadic and often at a distance from the release area. In 1981, single birds occurred near the release area and groups of birds were reported 20 and 60 miles from the release site. No spring leks were located in the 2 years following the release, and no reproduction was reported.

In 1982, KFGC personnel decided to attempt a different trapping approach, using rocket-nets to trap chickens on the lek sites. This resulted in 48 more chickens being transported to Iowa for release at the same area in the Loess Hills. A greater effort to acclimatize the birds was made in the 1982 release. The birds were banded and put in a large holding pen with separate cells for each sex. They

were kept in pens overnight for the males and a day longer for the females. It was hoped that males would be stimulated to remain near the release site by holding the females a day longer. Taped lek calls were also played through speakers located near the pen about 45 minutes prior to releasing males. This was an attempt to induce chickens to establish a lek in the area.

Two prairie chicken broods were reported near the release site in 1982, and up to six adults were observed near the Missouri River bottom the same year. Two leks consisting of only a few displaying males were located in 1983 and 1984. Most sightings were in the heavily agricultural Missouri River valley instead of the hills where they were released. Suitable grassland habitat was lacking in the valley. Only an occasional sighting has been reported in this region since 1984, leading to the conclusion that this reintroduction effort failed (Ron Munkel, IDNR, *pers. comm.*).

Second Reintroduction Attempt

1987-1989 Stockings: In 1987, the IDNR made a second restoration attempt at Ringgold Wildlife Area located two miles north of the Missouri border in Ringgold County (Fig 8.1). Wildlife personnel considered this region to be the best potential prairie chicken habitat in Iowa. In addition, the immediate vicinity was one of the last strongholds of prairie chickens in southern Iowa and northern Missouri (Christisen 1985, Stempel and Rodgers 1960). The surrounding portions of Ringgold County and adjacent Harrison County, Missouri, are cattle country, with 60% or more of the land in permanent grass. Donald Christisen (1985) concluded that the demise of prairie chickens in this area was due to heavy utilization of grasslands by livestock, resulting in poor quality habitat. Recent years had brought some positive changes in the grasslands of the area including the restoration of around 200 ha of prairie on the Ringgold Wildlife Area.

Birds were again obtained from Kansas through a three-way trade in which IDNR supplied wild turkeys to the Michigan Department of Natural Resources (MDNR) while a MDNR crew trapped prairie chickens in Kansas for translocation to Iowa. Prairie chickens were captured in the spring with funnel traps set on booming grounds in the Flint Hills region of Kansas. Every few days the captured birds were transported to Iowa and released the next morning utilizing a soft release box and artificial lek technique, which had been successfully used in Kansas to reintroduce sharptail grouse (Rodgers 1987). A total of 254 prairie chickens were translocated to the Ringgold Wildlife Area from Kansas during 1987, 1988, and 1989 (Table 8.1).

By the spring of 1988, leks had been established at the release site and a site 15 km south in Missouri. The Missouri site was on the Dunn Ranch, a cattle ranch operated by Forrest and Maury Meadows of Bethany, Missouri. The ranch included about 500 ha of well-managed native prairie pasture in addition to several hundred hectares of cool season pasture. This ranch contained a major lek before the disappearance of prairie chickens in the 1960's. The lek established in 1988 was on the same site as the historic lek, and the birds using it were verified as Iowa release birds by the bands on their legs (Maury Meadows, *pers. comm.*).

During 1990 and 1991 reproductive conditions for gallinaceous birds were poor in this area; however, brood sightings were made each year. By

1991, prairie chickens appeared to be firmly established on Dunn Ranch, but only one lek of six males could be located in Iowa that year. The success of the reintroduction of prairie chickens to the Dunn Ranch was the bright spot of the project thus far. It was evident that reintroductions in this region could succeed.

1992-94 Stockings: An agreement with KDWP once again allowed IDNR crews to trap and translocate 100 prairie chickens a year. Instead of releasing all of the birds at one site, it was decided to release significant numbers on large grassland tracts in the region, while releasing a smaller number at the original Ringgold Wildlife Area. Birds were translocated to two new sites in 1992, Mount Ayr and Kellerton, respectively 28 and 24 km north of Ringgold (Fig. 8.1). Sites continued to shift in subsequent years and the Orient site (Adair County) was added in 1993. All of the sites contained high quality grasslands and open landscapes. Predominant land use at all three sites was a mixture of pasture, hay, and CRP.

A total of 304 prairie chickens were released in this three-year period (Table 8.1).

Subsequent Stocking:

No additional stockings were anticipated following releases in 1994. However in 2001, South Dakota Game Fish and Parks (SDGFP) employees incidentally trapped three prairie chickens and offered them to IDNR. One male and two female chickens were released at the Kellerton lek in April 2001. This additional release results in a total of 561 prairie chickens translocated to Iowa since 1987.

Missouri Reintroduction: The Missouri Department of Conservation (MDC) has been reintroducing prairie chickens in north central Missouri since 1993. Approximately 100 birds have been released each year through 1997 and again in 2000. They have released birds at eight sites located 60 to 100 km southeast of the Ringgold Wildlife Area and 10 to 40 km south of the Iowa border (Larry Mechlin, MDC, *pers. comm.*). Some of these birds have been spotted in Iowa over the years.

Current Restoration Attempts: In 2012 the Iowa DNR has assembled an Iowa Management Plan for Greater Prairie Chickens. The plan includes a relatively detailed analysis of habitat in Ringgold County, Iowa and recommendations for managing that habitat for prairie chickens. A portion of the plan also proposes a translocation effort to bolster the diminishing population of birds.

In the short-term the plan suggests trapping and releasing roughly 350 birds between 2012 and 2015. In early April 2012, fifty birds, 25 male and 25 female birds were trapped in Southwest Nebraska (near Imperial) and released within 24 hours on the two active lek sites in the vicinity of Kellerton in Ringgold County, IA.

In 2013, 73 birds were successfully released at two active Iowa leks as well as an additional location at Dunn Ranch in Missouri. These birds were also trapped near Imperial,NE primarily using walk-in traps on leks. The goal had been to translocate 100 birds but drought in NE during the preceding year had impacted the birds available and crews also encountered poor weather during trapping. Missouri received 45% of the birds released and Iowa received 55%.

BOOMING GROUND SURVEY

Methods

Attempts have been made each spring by IDNR personnel and volunteers to locate leks and count booming males. Counts of known leks are made on sunny mornings with winds <10 mph throughout the month of April. In the past, lek sites were glassed or flushed to determine the number of booming males and new leks were located by driving gravel roads and stopping periodically to listen for booming. A more formalized survey was begun in 2009, using a prairie chicken habitat suitability model to establish 10 Survey Areas across 8 southern Iowa counties (Fig. 8.2). Each survey area has 15 listening points located randomly or at a known past or present lek site. As the translocation started in 2012 and staff time became more limited the area surveyed was constricted to a 25 mile radius of Kellerton and this continued in 2013. A total of 47 listening points were surveyed once a week during the booming season (Fig. 8.2). Similar counts were done on and around the Dunn Ranch in Missouri. It is possible that some booming grounds have not been located.

Results

2003: Three new locations were noticed again this year (Table 8.2). There was a gain of two leks from 2002 to nine for 2003, which is above the average to date by 15.3% (Table 8.2). This year yielded the most positive observation by matching the most leks observed since 1998. Also males per lek increased from 3.1 in 2002 to 3.6 in 2003, and total booming males showed increases of 10 from 22 to 32, making this the fifth most since 1995 (Table 8.2). Current and prior lek locations are shown in figure 8.2.

2004: Only one new location was noticed this year (Table 8.2). There was a loss of three leks from 2003 to six for 2004, which is below the average to date by 21% (Table 8.2). For the first time since reporting in 1995, only two counties are reported with active leks. Total booming males is among the lowest in record since 1997 (Table 8.2). However, males per lek continues to show steady numbers in recent years with 3.7 in 2004. Despite the large amount of spring rain in 2004, biologists still received reports of large broods. Current and prior lek locations are shown in figure 8.2.

2005: Two new lek locations were noted this year (Table 8.2). However, there was a reduction in total number of leks from six in 2004 to five this year. In 2005, there were once again 3 counties reporting active leks, which is up one county from last year. Total booming males was 24, which also is up from 22 last year (Table 8.2). Males per lek was the highest it has been since 2000, with 4.8 males per lek seen. Weather conditions were favorable for nesting this season, and broods have been reported. Current and prior lek locations are shown in figure 8.2.

2006: One new lek location was noted this year though one previously active was observed inactive so the total number of active leks remains at five (Table 8.2). These five leks were spread across three counties which is also consistent with last year. However, the lowest number of booming males since 1996 was recorded this year with only 16 reported (Table 8.2). The average number of males per lek was 3.2. No brood sightings were reported. Current and prior lek locations are shown in figure 8.2.

2007: Four active leks were identified this year spread through 3 counties (Table 8.2). Only 15 booming males were

recorded across these leks with an average of 3.75 males per lek. The largest lek is by the Kellerton viewing platform and observers on April 2, 2007 reported between 14-22 birds at a time on the lek evenly split between male and female. No broods were spotted during summer surveys in 2007.

The number of leks has declined over the past 10 years from a high of 9 to this year's 4. The number of booming males has declined as well and broods have proven difficult to find.

2008: A new effort was embarked upon in 2008 to determine the genetic diversity of southern Iowa's prairie chicken population. Trap lines were set out at the largest lek on the Kellerton Wildlife Area at the end of March and run through April 18th. Blood was collected from the 10 birds captured (7 males, 3 females) and sent for genetic analysis. Full results are still pending.

Booming males were counted on four leks this year all in Ringgold County. The biggest lek was once again at Kellerton Wildlife area where as many 14 males were initially observed booming though once the females appeared there were only 10 males. Current and prior lek locations are shown in figure 8.2.

2009: The newly established lek survey recorded 3 established lek sites in Ringgold County and one possible lek site in Adams County. The well established Kellerton lek had a high of 13 males and 4 females observed, while a smaller lek area to the north of Kellerton had a high of 4 males and 1 female seen during the survey (table 8.2). This smaller lek area was likely used by a total of 5 males and 2 females. One male was possibly heard booming at a lek area to the east of this smaller lek site. Another two male chickens were not seen, only heard at a possible lek area in Adams County.

In addition, a prairie chicken nest was located for the first time just southwest of the main Kellerton lek. Twelve eggs were counted and a later visit confirmed that 11 successfully hatched. A further sighting of the brood recorded that two of the chicks had died and the remainder of the brood was not seen and their fate is unknown.

2010: The 2010 lek survey recorded 3 established lek sites in Ringgold County. The well established Kellerton lek had a high of only 8 males however a high of 7 was collected on another satellite lek site and an additional 4 were observed on the final lek site, north of Kellerton (table 8.2). Outside of the lek survey an additional 6 females were observed on one of the satellite lek sites. The average number of males observed per lek was the highest it has been in the previous 10 years at 6.33. While this number should be somewhat encouraging it really seems to reflect the concentration of birds on fewer lek sites.

No prairie chicken nests or broods were located in the Kellerton area during 2010. However, two broods were flushed in two different fields at TNC's Dunn Ranch in northern Missouri. Other sightings in the Kellerton area include 2 observations of a winter flock containing 24-25 individual birds.

2011: Prairie Chickens were detected at 6 locations representing 3 lek sites. One of these areas, in Adams County, was previously unreported but despite additional visits with more intensive searching it was never confirmed as a lek site. It is presented here with the caveat that it is unconfirmed. A maximum of 6 males were detected at the lek on the Kellerton Wildlife Area. A maximum of 7 males were detected on the lek on private land northwest of the Kellerton Wildlife Area. The data for the lek in Adams

County listed only "more than 1" bird heard. No females were detected during the survey though up to 2 were seen at other times on the private lek.

Flushing brood surveys at the Kellerton Wildlife Area on August 1 turned up 5 adult prairie chickens, 3 of which were female, but no broods.

2012: The 2012 lek survey covered a 25 mile radius around the two active lek/release sites and 47 sites were surveyed. All survey sites had been surveyed using the same methodology in 2011. Twenty-five sites were historically known lek sites and 22 were random survey points. Each site was visited around sunrise twice between April 1 and 25. Prairie chickens were detected on 4 different sites all on or within 1.5 miles of a currently active lek. A count of 14 birds was recorded on April 2nd before the translocation began and 17 birds were detected on April 18th including one bird seen on one new site. A survey of one active lek from a blind on April 17th counted 8 males and 2 females present with one of the birds wearing a leg band from the translocation.

Two broods have also been detected through opportunistic observations. One was located on the Kelleron Wildlife Area and one on private ground about 2 miles Northwest of the Kellerton Lek. A total of 10 young were counted.

2013: The 2013 lek survey covered a 25 mile radius around the two active lek/release sites and 47 sites were surveyed. All survey sites had been surveyed using the same methodology since 2009. Twenty-five sites were historically known lek sites and 22 were random survey points. Each site was visited around sunrise twice between April 1 and 25. Prairie chickens were detected on 4 different sites all on or within 1.5 miles of a currently active lek. Post-release average counts of birds increased by an average of 1.23 birds from pre-release counts. The average maximum birds across the four active leks was seven. The maximum number of birds seen on one morning during the booming season was 24 birds. Outside of the formal lek survey (and normal booming season) prairie chicken booming was heard on a historic lek to the north of Kellerton on June 6.

Ten of the hens that were translocated in 2013 were fitted with satellite GPS transmitters. Only one of the hens remains under surveillance as of September 2013 and she was located in Southwest Union County, IA. Up to that time she had traveled over 1000 miles in large loops through Southern IA and Northern Missouri. Seven of the ten hens were confirmed mortalities with the other two having an unknown fate.

Two broods have been opportunistically observed on Kellerton WA: one with six young on June 26 and one with four young on August 9th. No broods were observed on a pilot roadside brood survey conducted in mid-July.

DISCUSSION

Prairie chicken reintroduction efforts have resulted in a small population of prairie chickens in a concentrated area of southern Iowa and northern Missouri.

Pasture and hay are still primary land uses in this region which benefits the chickens. One major threat to the habitat in this area is the high price of corn, making CRP less desirable. Hundreds of acres of CRP have been and are likely to continue to be removed from the program and returned to crop land in the next few years.

On a positive note, this area was

targeted for additional acres in the CP-38 SAFE program with the goal of restoring habitat specifically for chickens and the USDA announced the first open sign-up for CRP in a few years. The area around Kellerton is also a high priority area for land acquisition particularly tracts to the south of Kellerton WA that would connect with Ringgold WA and prairie chicken populations in northern Missouri. Eighty acres of protected land has just been added adjacent to Kellerton WA. In addition, intensive management of large blocks of grassland by public agencies will help ensure adequate habitat into the future.

Another complicating aspect of prairie chicken management is the small size of the prairie chicken population and whether because of low genetic diversity, it may be necessary to supplement the population with additional releases. The trapping study in 2008 and 2011 revealed that genetic diversity within the population was low (Johnson 2008, 2011). Introduction of new birds should assist with improving genetic diversity in this small population.

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Table 8.1. Dates, numbers, and locations of greater prairie chicken releases in Iowa, 1980-2013. Gamma (Γ) = male, Epsilon (E) = female

Release Date	No. Released	Source*	Release Location
February 1980	29Γ 24E	KFGC	Loess Hills Wildlife Area, Monona Co.[1]
April 1982	31Γ 18E	KFGC	Loess Hills Wildlife Area, Monona Co.
April 1987	20Γ 9E	KFGC	Ringgold Wildlife Area, Ringgold Co.[2]
April 1988	48Γ 75E	KFGC	Ringgold Wildlife Area, Ringgold Co.
April 1989	40Γ 62E	KFGC	Ringgold Wildlife Area, Ringgold Co.
April 1992	18Γ 21E	KDWP (IDNR trapping crew)	Mount Ayr, Ringgold Co., Price Twp., Sec. 13.[3]
April 1992	31Γ 20E	KDWP (IDNR trapping crew)	Kellerton, Ringgold Co., Athens Twp., Sec. 8.[4]
April 1992	9Γ 9E	KDWP (IDNR trapping crew)	Ringgold Wildlife Area, Ringgold Co., Lotts Creek Twp., Sec. 24.[2]
April 1993	13Γ 33E	KDWP (IDNR trapping crew)	Kellerton, Ringgold Co., Athens Twp., Sec. 8. [2]
April 1993	24Γ 24E	KDWP (IDNR trapping crew)	Orient, Adair Co., Lee Twp., Sec. 36.[5]
April 1994	10Γ 17E	KDWP (IDNR trapping crew)	Kellerton, Ringgold Co., Athens Twp., Sec. 8.[4]
April 1994	31Γ 34E	KDWP (IDNR trapping crew)	Orient, Adair Co., Lee Twp., Sec. 36.[5]
April 2001	1Γ 2E	SDGFP	Kellerton, Ringgold Co., Athens Twp., Sec. 16.[4]
April, 2012	12Γ 8E	Nebraska Game and Parks (IDNR Trapping crew)	Kellerton, Ringgold Co., Athens Twp., Sec. 16.[4]
April, 2012	10Γ 17E	Nebraska Game and Parks (IDNR Trapping crew)	Kellerton, Ringgold Co., Athens TWP., Sec. 6
April 2013	16Γ 10E	Nebraska Game and Parks (IDNR Trapping crew)	Kellerton, Ringgold Co., Athens TWP., Sec. 16[4]
April 2013	5Γ 9E	Nebraska Game and Parks (IDNR Trapping crew)	Kellerton, Ringgold Co., Athens TWP., Sec. 6

* KFGC = Kansas fish and Game Commission, KDWP = Kansas Department of Wildlife and Parks, SDGFP = South Dakota Game Fish and Parks Department, IDNR = Iowa Department of Natural Resources.

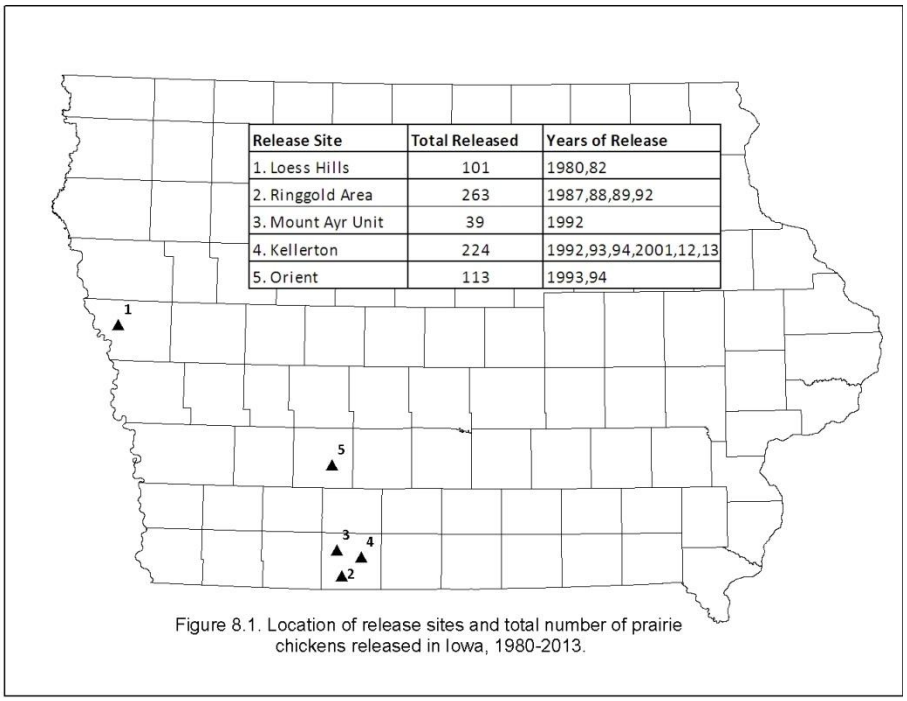
[1-5] Release sites indicated on county map (Figure 8.1)

Table 8.2. Location and number of greater prairie chickens observed on active leks in Iowa, 2003-2013.

		Legal Description													
County	Township	Twp.	Rge.	Sec.	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Adams	Union	72N	32W	24											
Adams	Douglas	72N	35W	26							2				
Adams	Prescott	72N	33W	4									2[a]		
Decatur	High Point	69N	24W	1											
Decatur	High Point	69N	24W	2	4										
Decatur	High Point	69N	24W	11											
Đecatur	Grand River	69N	27W	16				1	1						
Decatur	Grand River	69N	27W	22			3	1	2						
Decatur	Franklin	70N	25W	9											
Decatur	Franklin	70N	25W	20											
Decatur	Garden Grove	70N	24W	36											
Ringgold	Athens	68N	28W	4	2		3	2		2		7			
Ringgold	Athens	68N	28W	16NE	10	11	11	11	9	14	13	8	6	2	9
Ringgold	Athens	68N	28W	16SW											9
Ringgold	Athens	68N	28W	8		3					1				1
Ringgold	Athens	68N	28W	17											
Ringgold	Athens	68N	28W	2	1										
Ringgold	Athens	68N	28W	20										1	
Ringgold	Athens	68N	28W	6							5	4	7	9	9
Ringgold	Athens	68N	28W	5										5	
Ringgold	Poe	68N	29W	?											
Ringgold	Rice	68N	30W	24											
Ringgold	Rice	68N	30W	13	2	1									
Ringgold	Liberty	69N	29W	3		2									
Ringgold	Liberty	69N	29W	10											
Ringgold	Monroe	69N	28W	2											
Ringgold	Monroe	69N	28W	12		4									
Ringgold	Monroe	69N	28W	28						2					
Ringgold	Monroe	69N	28W	33											
Ringgold	Monroe	69N	28W	15	1										
Ringgold	Monroe	69N	28W	22											
Ringgold	Tingley	70N	29W	34			5			1					
Union	Spaulding	73N	31W	?											
Wayne	Jackson	68N	21W	18		1	2	1	2						
Wayne	Jackson	68N	21W	14	2										
	Total Chickens[b]	mean=		21.07	22	22	24	16	14	19	21	19	13	17	24
	Total Active Leks	mean=		5.75	7	6	5	5	4	4	4	3	2	4	4
	Total Chickens/Lek[b]				3.14	3.67	4.80	3.20	3.50	4.75	5.25	6.33	6.50	4.25	6

[a] Not confirmed and number of birds heard listed as "more than 1"

[b] before 2009 = only males, maximum number of chickens counted on one morning, may not equal lek counts



Release Site	Total Released	Years of Release
1. Loess Hills	101	1980,82
2. Ringgold Area	263	1987,88,89,92
3. Mount Ayr Unit	39	1992
4. Kellerton	224	1992,93,94,2001,12,13
5. Orient	113	1993,94

Figure 8.1. Location of release sites and total number of prairie chickens released in Iowa, 1980-2013.

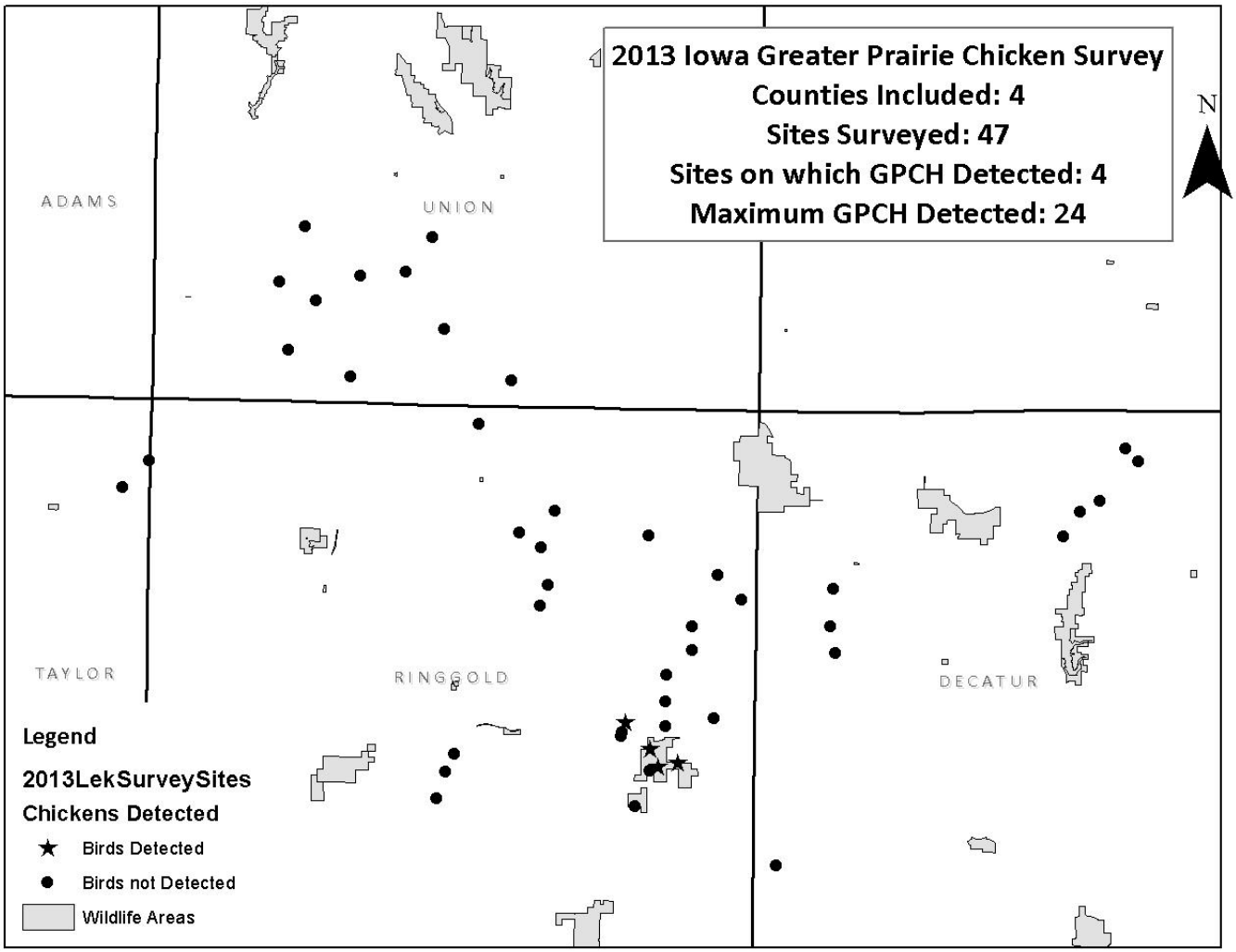
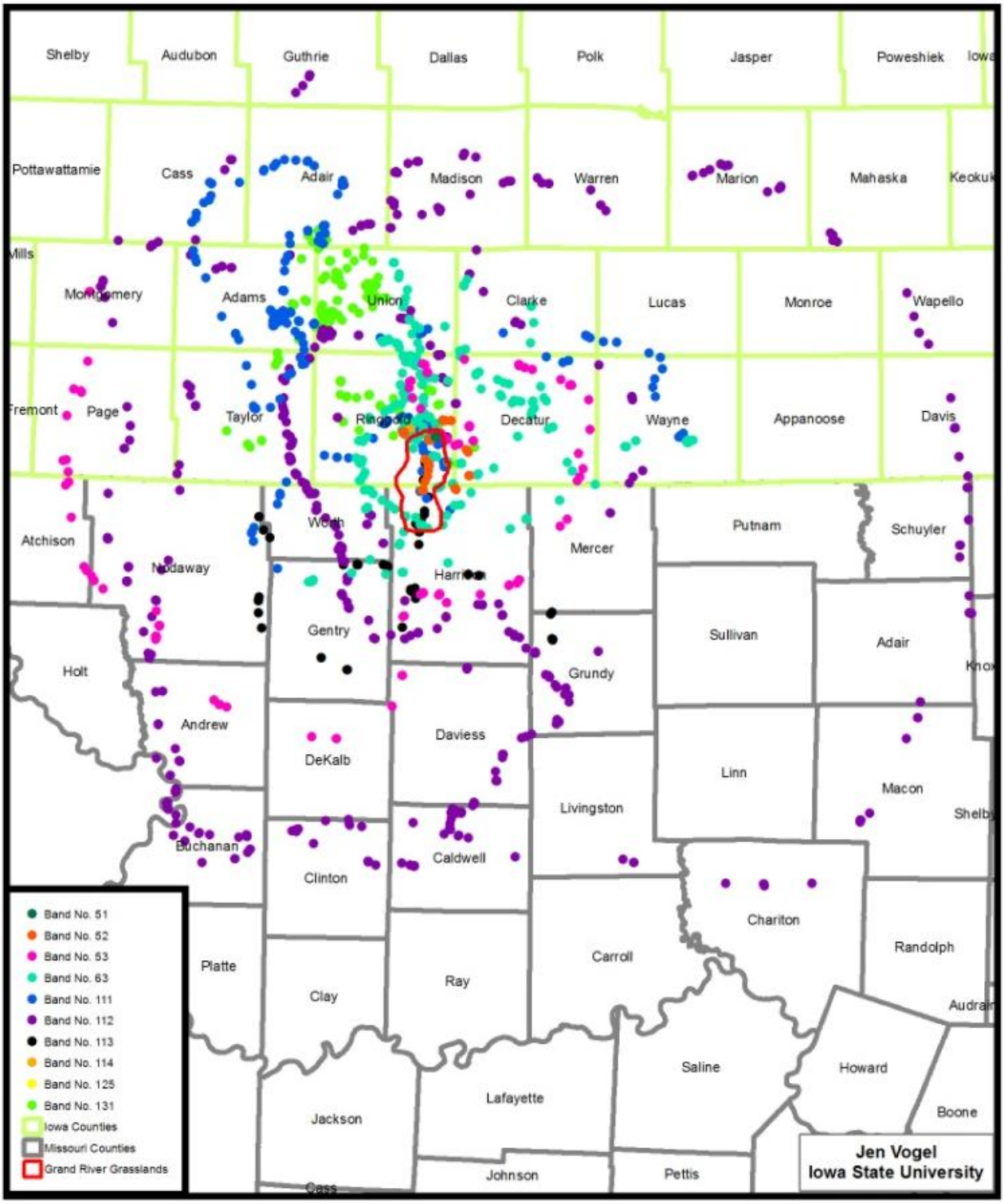


Figure 8.2. Location of sites surveyed and sites where chickens were detected during the 2013 prairie chicken lek survey.

Figure 8.3 Movement map of ten translocated hens, released in Iowa and fitted with GPS satellite transmitters.



Greater Prairie Chicken (*Tympanuchus cupido*) restoration in the Grand River Grasslands of Southern Iowa and Northern Missouri.

2013 Translocation Summary

Project: Greater Prairie Chicken (*Tympanuchus cupido*) restoration in the Grand River Grasslands of Southern Iowa and Northern Missouri.

Title: 2013 Translocation Summary

Introduction

The translocation portion of Prairie-chicken restoration in the Grand River Grasslands started in 2012 with a pilot effort to move birds from Nebraska to Iowa. A total of 47 birds were released at two locations in Ringgold County, Iowa in April 2012. In 2013 our objective was to increase the number of birds trapped and released to 100 and to expand the area of release to include an active lek at Dunn Ranch (Nature Conservancy owned property) in Harrison County, Missouri (Fig. 1).

Iowa DNR staff met with staff from Nebraska Game and Parks on October 22nd, 2012 and discussed the results of 2012's trapping and established an agreement to continue the translocation through 2015. The agreement that resulted from the meeting allows the Iowa DNR to coordinate a trapping effort for Grater Prairie Chickens in Nebraska through 2015 and established that trapping in 2013 would be in the same landscape as 2012, near Imperial, Nebraska. Nebraska Game and Parks requested that the Iowa DNR use the following guidelines for trapping: IDNR staff is allowed to remove up to 100 chickens per year with no more than 50 females total and no more than 10 females removed from any one lek with at least ten females remaining on the lek (assuming an even sex ratio). Leks with at least fifteen males should be targeted.

A research element was added to the translocation plan for 2013. GPS transmitters were installed on ten hens released in Iowa and radio transmitters were installed on all hens released in Missouri. The objective is to use these transmitters, in conjunction with habitat surveys, to model habitat usage, in addition to mapping the birds' movement. Extensive landscape scale lek surveys were also done 1-2 times weekly during the booming season in both Iowa and Missouri.

The trapping methods remained consistent with those used in 2012. All trapping occurred on private land within a radius of Imperial, NE. Funnel trap arrays were set on leks and opened for capture during morning lek displays. Drop-nets were also utilized on three sites but were not successful in catching any birds. All captured birds were banded, and had blood drawn for disease testing (specifically Pullurom Typhoid per Iowa Administrative Rule 65.11) and genetic analysis. The birds were then immediately transported to Iowa or Missouri and were released on the same day of capture on one of two active lek sites in Iowa and at one active lek on Dunn Ranch in Missouri. These releases mostly coincided with the evening display period (before 7 pm) on these leks.

Operations in Nebraska

Trapping activities took place in southwest Nebraska near the town of Imperial. All trapping took place on private land that supported prairie chicken leks (Fig. 2). Iowa DNR and Iowa/Missouri Nature Conservancy staff arrived in the area April 1 and spent the day Tuesday April 2nd scouting lek locations and installing trap arrays. Trapping continued through April 12 and across that time period, trap arrays

were set on eleven different locations. Birds were trapped and removed from all eleven leks (Table1, Fig. 2).

Prairie-chicken numbers in the area were noticeably smaller in 2013, likely as a result of the drought that impacted the area in 2012. Overall chicken weights were also on average statistically lower in 2013 ($\bar{X}$=960 grams) then in 2012 ($\bar{X}$ = 1397 grams) which supports the idea that drought had an effect on Prairie-chicken populations in the area. Leks of the proper size for trapping were more difficult to find. A blizzard also hit the area during trapping (4/9 to 4/10). All of these factors resulted in a less successful trapping season then 2012, and the goal of 100 birds was not met. In total, 75 birds were trapped over 10 days of trapping; 40 males and 35 females (Table 1). Two of these birds died (both males) before release. The best day of trapping was day two (4/4/2013) with 23 birds caught off of five leks.

Table 1. 2013 Prairie Chicken trapped lek sites near Imperial, Nebraska. Map of sites in Figure 2.

Lek #	Lek Name	New in 2013	XUTM	YUTM	High Count on Lek	Males Trapped	Females Trapped	Total	Comments
1	Pivot	No	287510	4496422	18	5	1	6	
2	Jeff (North Lek)	No	283485	4501132	32	9	8	17	
3	East Maddux	Yes	297839	4492228	17	1	5	6	
4	West Maddux	Yes	292003	4492208	33	2	5	7	
5	Todd	No	284862	4495298	20	2	3	5	
6	Corn Field	Yes	276377	4481866	22	9	3	12	
7	Flat Tire	Yes	274465	4482580	20	4	5	9	
8	German Ridge	Yes	276005	4482990	8	2	0	2	Satellite of Lek 6
9	Haynes	Yes	264480	4505370	17	4	5	9	
11	Moreland	Yes	266156	4501541	21	1	0	1	
12	Josh's Old	No	288823	4493790	15	1	0	1	
				TOTAL:	**223**	**40**	**35**	**75**	

In addition to trapping, there were also research activities that took place before transporting the birds to Iowa and Missouri. On April 3rd and 4th, ten of the first hens trapped (one on April 3rd and nine on April 4th) were fitted with GPS transmitter units. One of the birds from April 4th partially slipped its transmitter harness during transport so it was removed and installed on a hen trapped and released on April 7th. Otherwise, this process went smoothly.

Trappers also cooperated with a research study being conducted out of the University of Nebraska-Omaha examining stress in prairie chickens. This required the collection of fecal samples from eleven birds after trapping and during transport on April 4th. This process, coupled with the large number of birds trapped on this day, caused a good bit of delay and confusion and resulted in the birds being released much later (after 8 pm) than was preferred. If there are any future opportunities to cooperate

with researchers, tighter restrictions will be placed in order to minimize interference with the translocation schedule.

A total of 26 Iowa DNR staff, two volunteers, four Iowa/Missouri TNC staff, three Iowa State University staff and nine Blank Park Zoo staff were involved with the trapping across the ten days. Operations were managed by Chad Paup and Josh Rusk with the Iowa DNR's Grand River Wildlife Unit. Several USDA veterinary staff also assisted in drawing blood and performing required testing on the birds.

Operations and Results in Iowa and Missouri

A total of 73 birds were successfully released in Iowa and Missouri on a total of three active lek sites. All birds were released within 13 hours of capture in Nebraska. The three release sites were: Kellerton Wildlife Area (Iowa, DNR owned), Private Lek (Iowa, Privately owned) and Dunn Ranch (Missouri, TNC owned) (Table 2, Fig. 1). A majority of the birds were released between 6:15 and 7:15 pm but the 34 birds released on April 3rd and 4th were released later than ideal (7:45-8:00 pm). A total of 33 birds were released in Missouri (45%) and 40 birds were released across the two sites in Iowa (55%) (Table2).

Table 2. Prairie Chicken release information					
Release Date	**Release Location**	**# Females Successfully Released**	**# Males Successfully Released**	**Total Number Released**	**With Transmitters**
4/3/2013	Kellerton WA	1	10	11	1
4/4/2013	Dunn Ranch	4	10	14	4
	Kellerton WA	9	0	9	8
4/5/2013	Kellerton WA	0	2	2	0
4/6/2013	Dunn Ranch	0	4	4	0
	Kellerton WA	0	4	4	0
4/7/2013	Private Lek	1	2	3	1
4/8/2013	Private Lek	6	0	6	0
4/9/2013	Dunn Ranch	2	0	2	2
4/10/2013	Dunn Ranch	1	1	2	1
4/11/2013	Dunn Ranch	7	0	7	7
4/12/2013	Private Lek	2	3	5	0
	Dunn Ranch	2	2	4	2
TOTAL KELLERTON		10	16	26	9
TOTAL PRIVATE LEK		9	5	14	1
TOTAL DUNN RANCH		16	17	33	16
OVERALL TOTAL		**35**	**38**	**73**	**26**

Monitoring and Research

Monitoring of the released birds was done using two different methodologies: Radio Telemetry and Satellite/GPS tracking of a select number of hens and landscape-wide lek surveys performed weekly.

Ten of the hens released in Iowa were fitted with Argos GPS/satellite transmitters, which allowed the collection of up to six locations per day per bird by passive means (Figure 3). As of August 1 all but one of the birds is dead or has shed the transmitter (believe 8 mortalities, 1 lost transmitter). One bird nested in Union County Iowa on private land, but the nest and hen were predated after a majority of the field was hayed in mid-July. The one remaining hen has surprised everyone by the scope of her movements. She has been continuously on the move since her release and has traveled 1,180 miles in big loops through Iowa and Missouri. As of late August she had finally settled in southwestern Union County, IA.

All sixteen hens released in Missouri were fitted with radio transmitters by the Missouri Department of Conservation (MDC). Two were confirmed mortalities within the first two days of release (one raptor and one mammal) and one at 20 days post release (cause undetermined). Ten of the birds dispersed within the first 2 weeks of release, nine of which have not been relocated despite several attempts with a truck mounted antenna and one helicopter flight. One of the dispersed hens was located on July 12, during the helicopter flight, on private land approximately 12 miles south of the release site. It is not known if this hen attempted to nest and no chicks were detected when attempting brood flushes.

All three hens that remained within Missouri's portion of the focus area attempted nests. Two on Dunn Ranch with clutch sizes of 14 and 12. One nested on private land adjacent to MDC's Pawnee Prairie. This hen was killed (mammal) while on the nest and her clutch lost. The two Dunn Ranch nests hatched successfully. The first clutch hatched on June 19 and the second during the weekend of June 22. At least two attempts were made to determine brood sizes at approximately 30 and 34 days post hatch, but no chicks were detected (Figure 4). Despite not detecting any chicks with the radio marked hens during brood flushes, MO TNC staff witnessed a hen with chicks near the main lek on at least one occasion. It was not determined if the hen was radio collared.

Prairie chicken lek surveys were conducted weekly from March 21, 2013 to April 27, 2013. We surveyed 4 previously established lek survey routes in Iowa and we established 2 additional lek survey routes in Missouri (surrounding Dunn Ranch). The surveys were conducted using the previously established lek survey methods of the IDNR.

Three of the 4 lek survey routes in Iowa had no prairie chicken observations. Survey route number 4, which contains the 2 known active leks in Iowa, was the only Iowa route where observations of prairie chickens were made (Table 3). We observed prairie chickens at various locations on both of the Missouri lek survey routes.

Site	Survey Area	Pre-Release Max	Post-Release Max	Pre-Release Average	Post-Release Average	Notes
4-10	Iowa	0	1	0.00	0.25	
4-11	Iowa	8	9	4.50	5.67	Kellerton Lek
4-4	Iowa	0	9	0.00	2.25	
4-6	Iowa	5	9	4.50	5.75	Woods Lek
5-10	Missouri	0	2	0.00	1.00	
5-5	Missouri	0	3	0.00	1.00	
5-7	Missouri	0	1	0.00	0.33	
5-8	Missouri	0	1	0.00	0.33	
6-10	Missouri	0	5	0.00	2.00	
6-2	Missouri	0	2	0.00	0.67	
6-5	Missouri	0	8	0.00	2.67	Dunn Lek
6-8	Missouri	0	5	0.00	1.67	

A total of 74 blood samples as well as egg shells from two of the nest sites were also collected and will be submitted for genetic analysis to Dr. Jeff Johnson of the University of North Texas.

One roadside brood survey was pilot performed in mid-July with no broods or adults counted on the roads in a 4 km radius of the main active lek sites. We hope to put a more formal survey in place next year. Two broods have been observed opportunistically on or near the Kellerton WA: one with 6 young on June 26 and another with at least four (roughly quail sized) chicks on August 9.

Iowa Prairie Chicken Management Plan Accomplishments

This translocation project is part of a larger plan to establish a large landscape of native grassland in Southern Iowa/Northern Missouri and to restore a viable Prairie-chicken population. Beyond the results of the translocation, progress has also been made in achieving some of the goals of the larger plan.

1) Missouri TNC received a grant from the MDC to purchase a skid loader with a tree saw to be used for tree removal on protected and private land in the focal areas and surrounding landscape.
2) Missouri TNC high-mowed 1400 acres of grass on Dunn Ranch to 15” stubble height and received a grant to high mow an additional 1400 acres this fall as well as mark all fences on the area with reflectors.
3) Missouri Department of Conservation (MDC) and the Iowa DNR are using Patch-burn grazing management on Pawnee Prairie (MO) and Kellerton Wildlife Area (IA)to create a diverse vegetative structure, attractive to chickens, on the areas.
4) Iowa TNC has designated the area within the focal landscape as a priority area for land protection.

5) Iowa DNR is in the process of trying to purchase a tract of land adjacent to Kellerton WA from a willing seller.
6) The Iowa DNR and MDC were awarded an almost $500,000 Competitive State Wildlife Grant for management in the focal landscape. It will fund research on fescue control, habitat work on private lands and land protection.

Future Plans

Trapping and transporting will continue in 2014. Iowa DNR staff thinks it would be wise to move to a new area in Nebraska for trapping, and we will be implementing a week of scouting before trapping begins. Monitoring of the birds will continue with radio and satellite/GPS transmitters though some changes may be made in which birds receive transmitters. In Iowa (Missouri is already doing this), we'd like to place call playback devices on both active leks and perhaps some other historic lek sites in the landscape to test whether these might affect the hen's dispersal behavior. We will also be expanding the radius of our lek survey routes. Finally, we hope to put into place a formalized brood survey in July and August.

Acknowledgements

This species restoration effort would not be possible without the help and cooperation of a number of key partners in 2013. The Blank Park Zoo in Des Moines, Iowa has provided invaluable financial support for this project for the past three years as well as providing staff for trapping in 2013. The money provided in 2013 helped fund the research portion of the project and off-set some of the travel costs incurred. The Iowa and Missouri chapters of the Nature Conservancy engaged as full partners in 2013, providing trapping staff, funding for the research portion of the project and significant prairie-chicken friendly land management activities at Dunn Ranch. The Nebraska Game and Parks Commission has continued to be incredibly helpful in granting permission to trap and remove birds from Nebraska and also helping direct us to lek locations in the southwest. The veterinarians from the USDA –APHIS and Nebraska State Veterinarian's office, who performed all the required testing and inspection of the captured birds, were extremely accommodating and cooperative. Finally, we also received a lot of great advice and training from the team at the Missouri Department of Conservation and they are providing assistance to TNC with monitoring and land management in the area around Dunn Ranch. This has been a truly cooperative project and it would not be happening without all of these partners – THANK YOU!

Figure 1. Release Locations in Iowa and Missouri

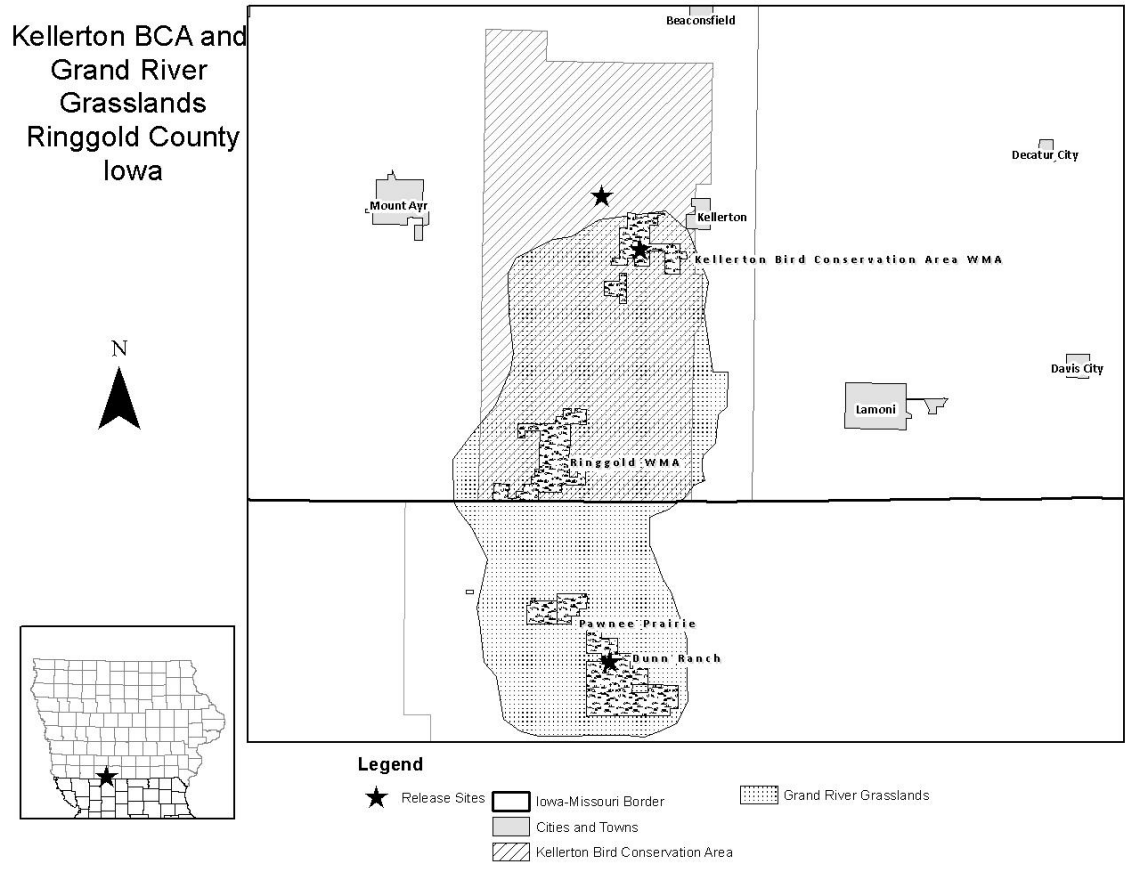


Figure 2. Leks trapped on near Imperial , NE.

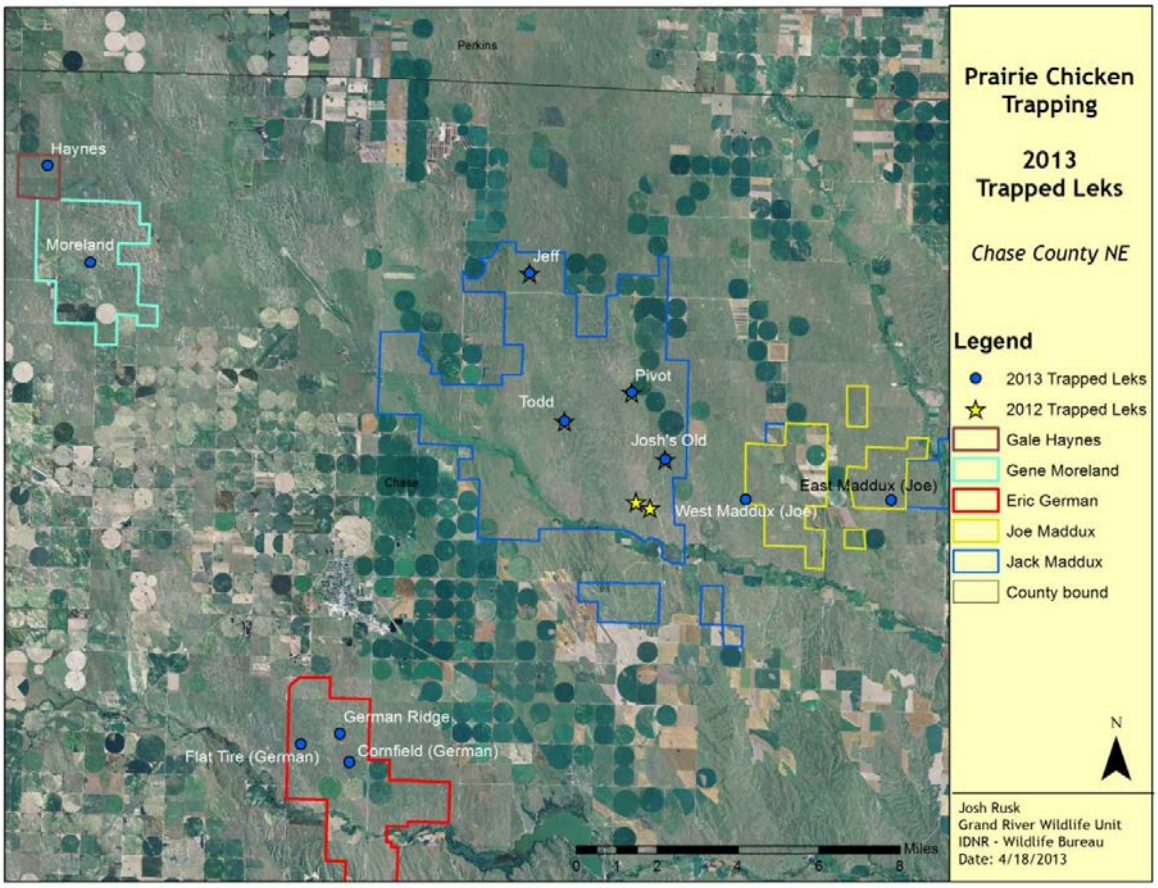
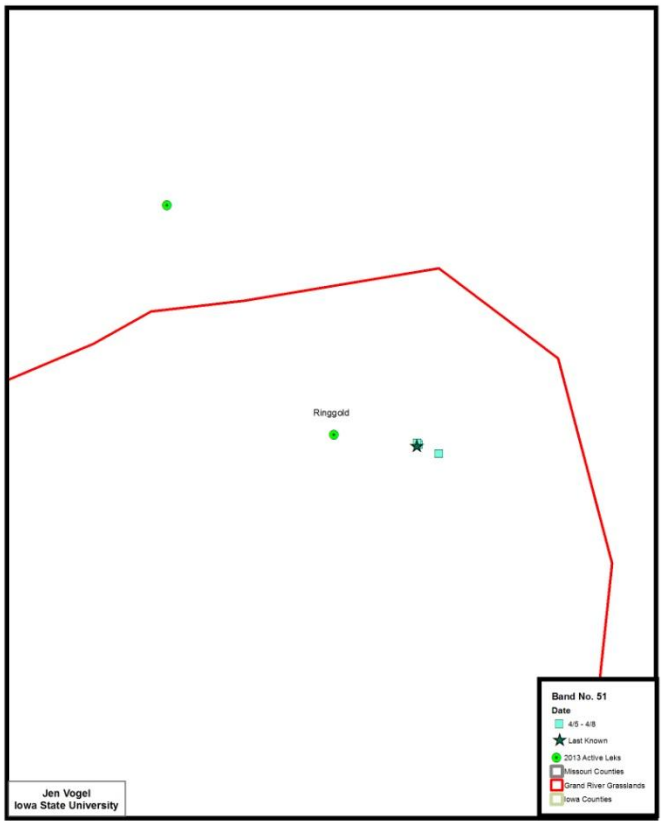


Figure 3 –Movement maps as of 8/22/2013 for birds fitted with satellite transmitters and released in Iowa .

Bird Number 51



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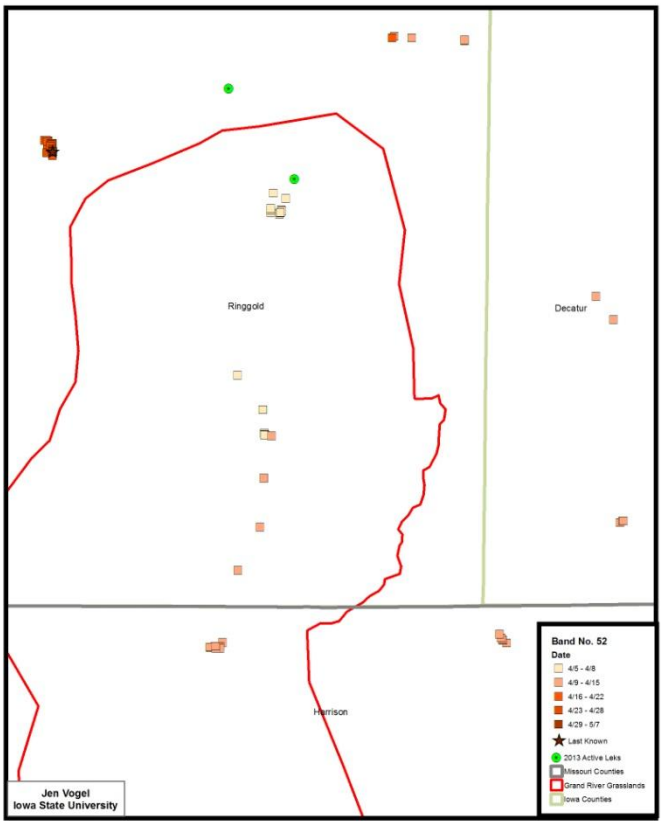

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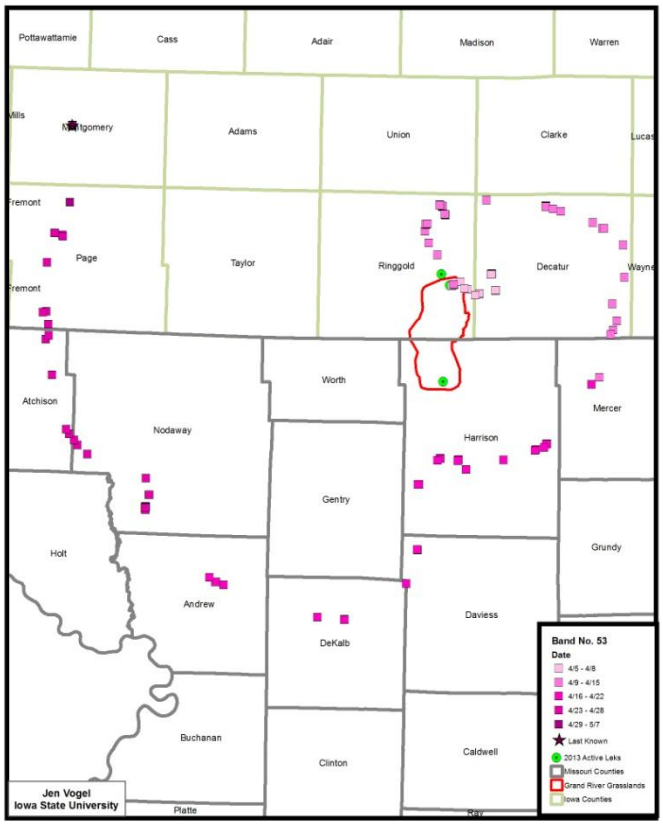

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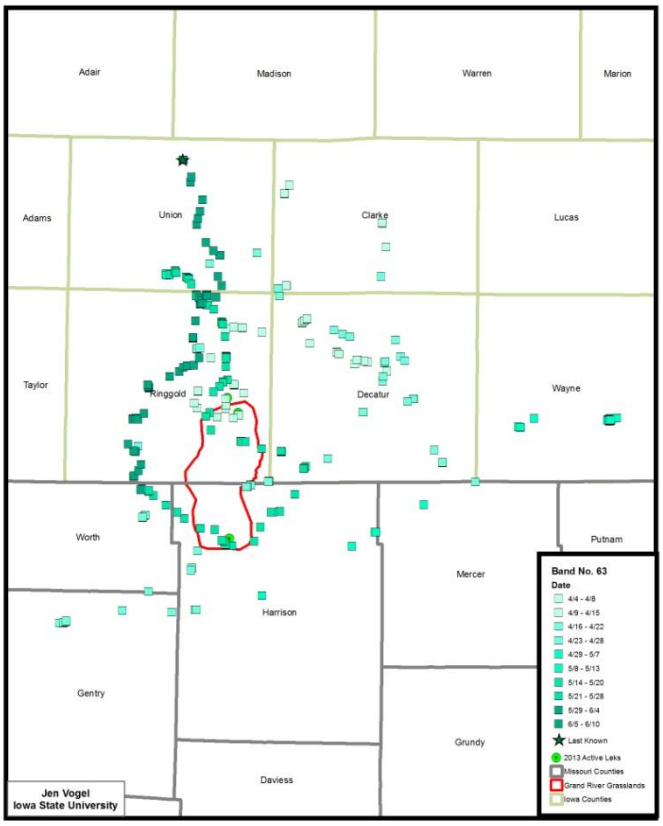

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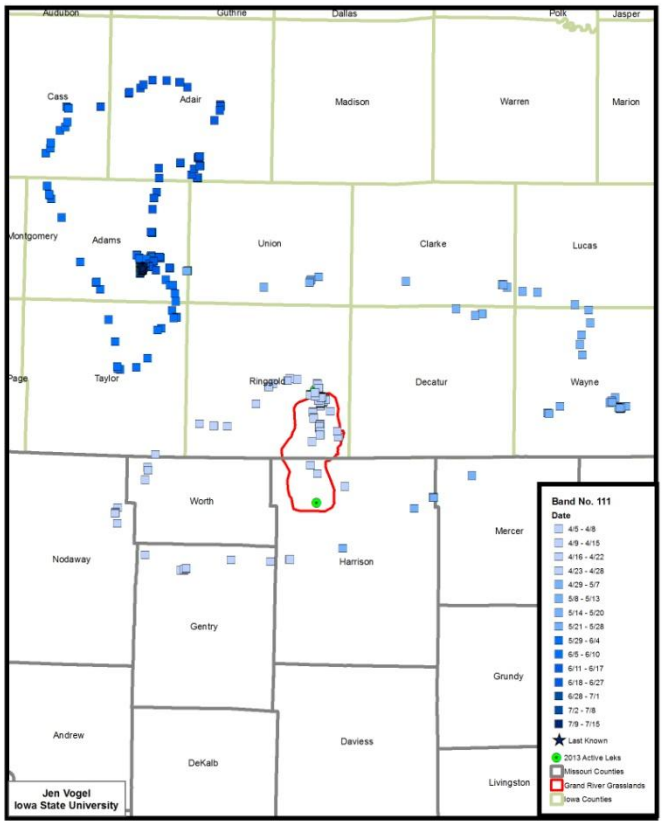
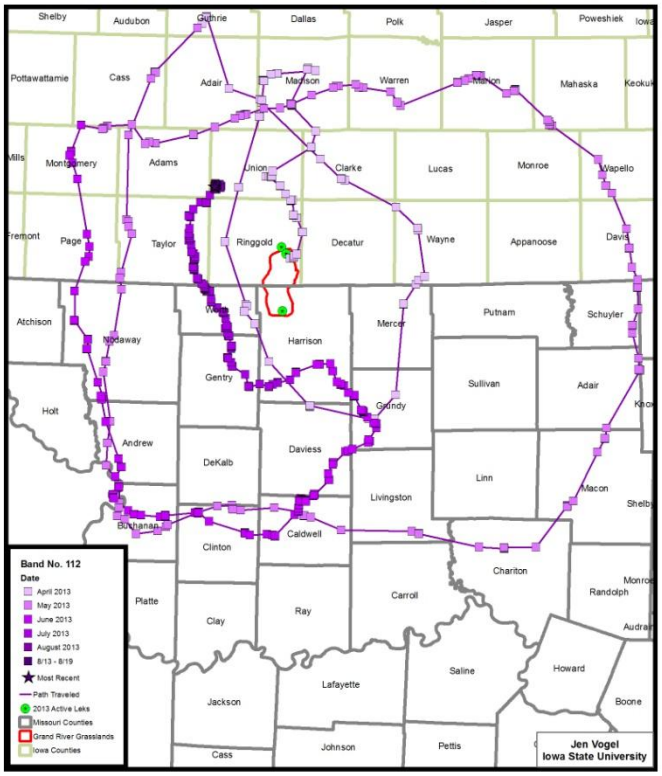


Bird Number 112
August 19, 2013
Distance Traveled Since Release = 1,180 miles



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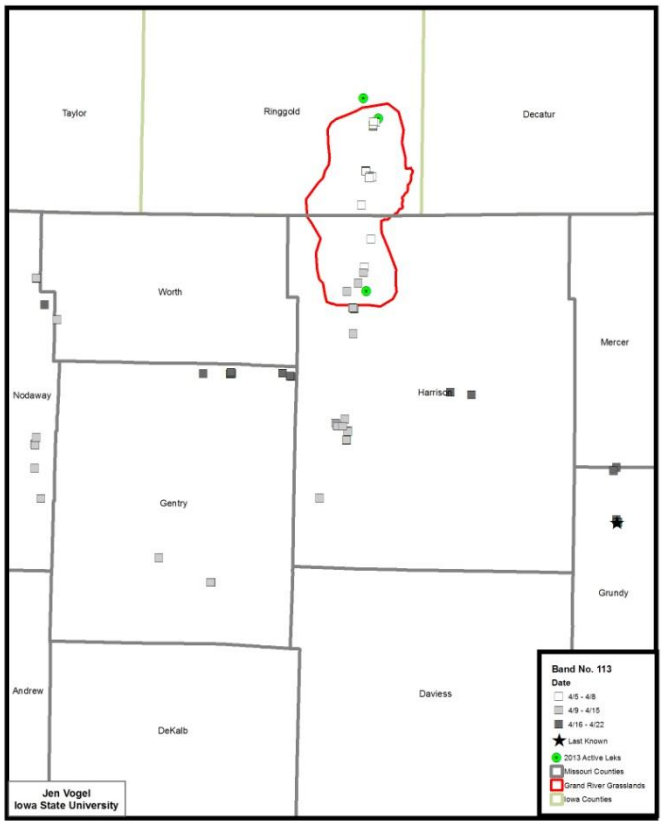

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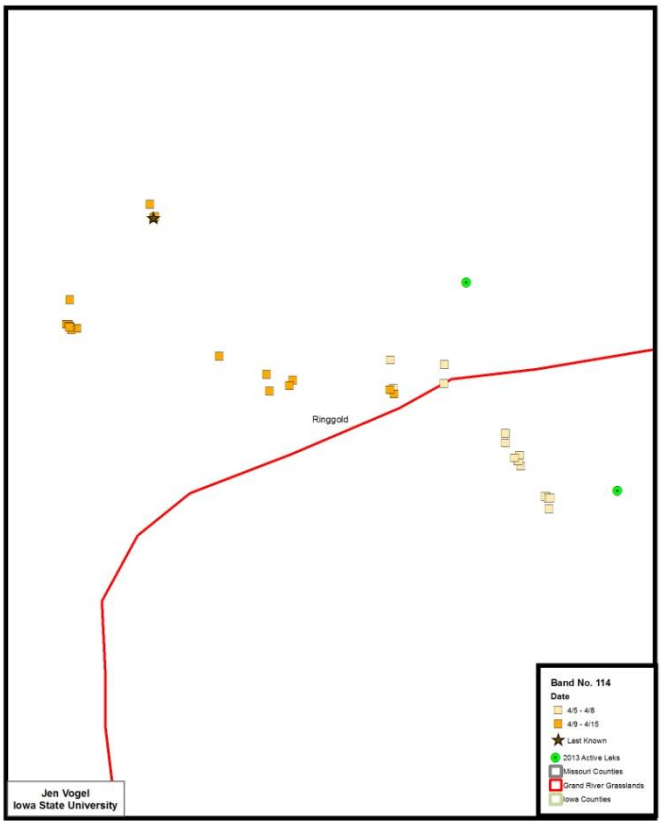

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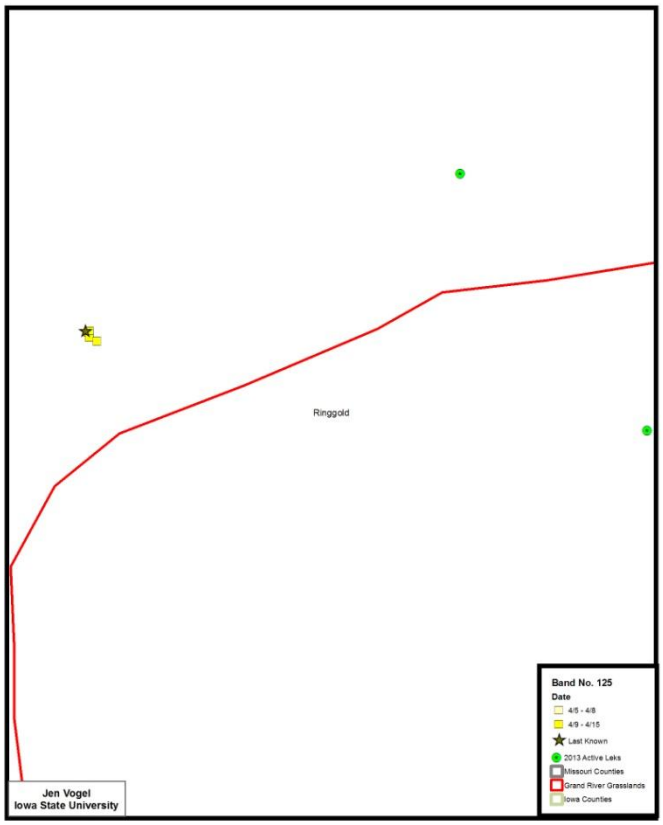

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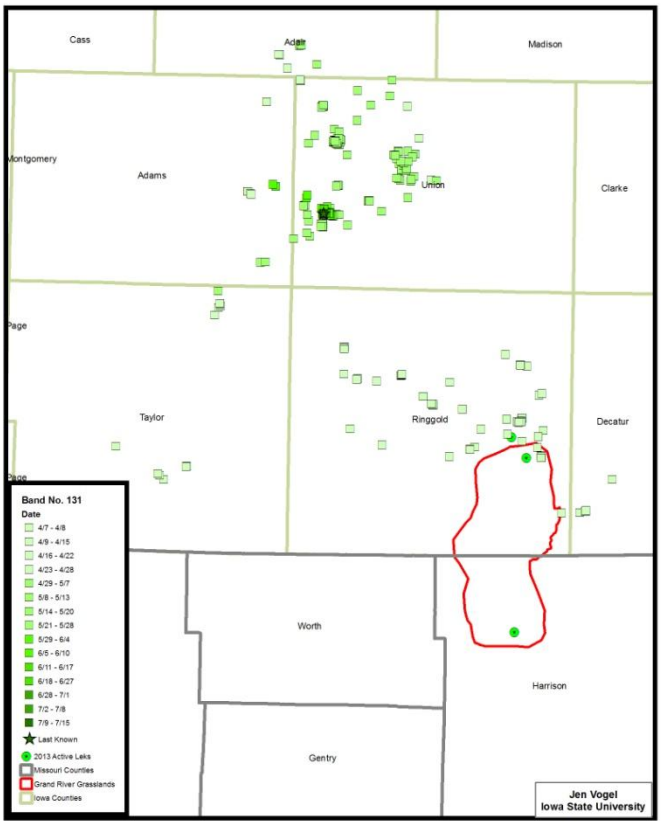
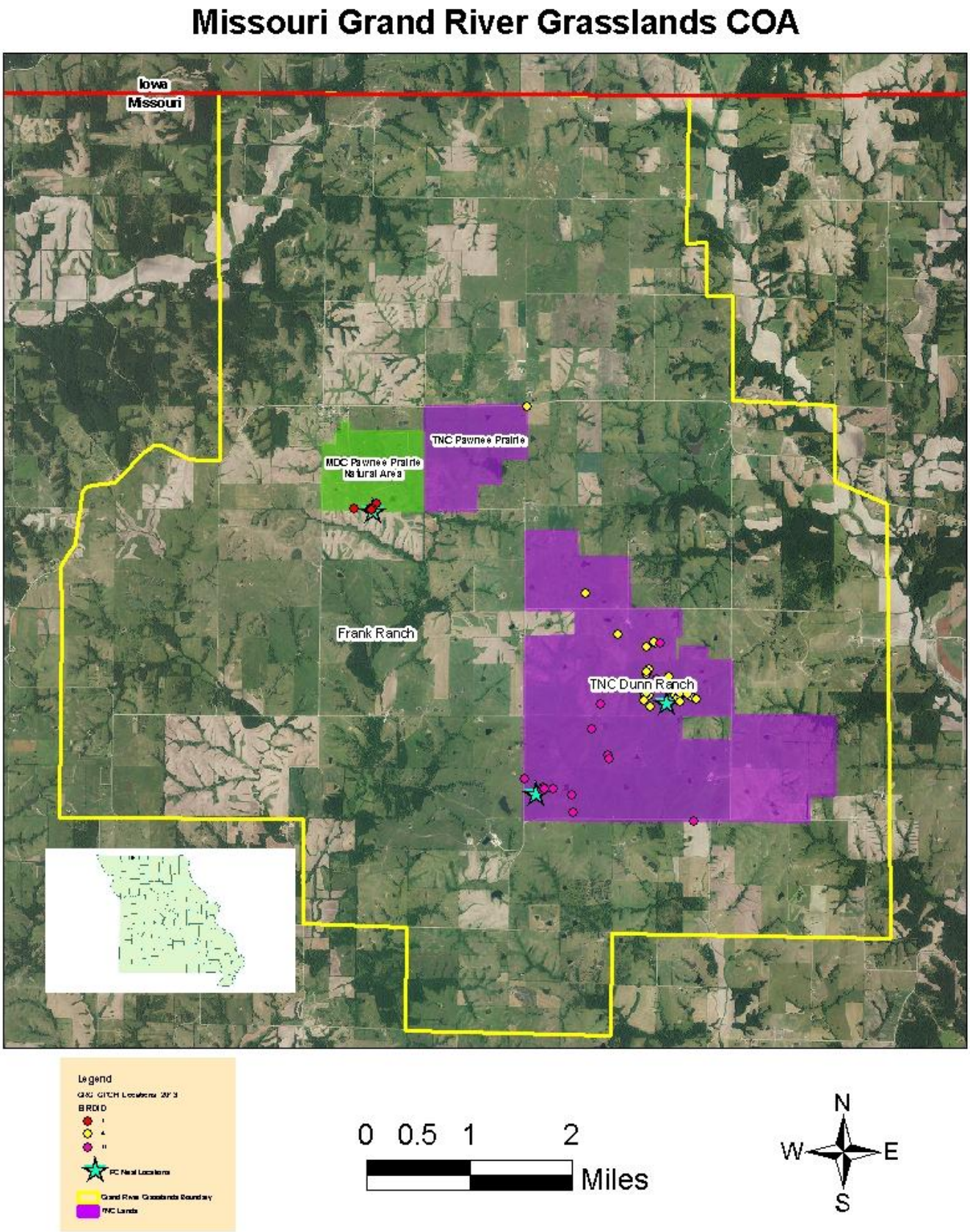


Figure 4. Map of radio-transmittered birds released in Missouri as of August 2013.



Appendix 1. Pictures of translocation project

Attaching rump-mounted transmitter

April 4th Trapping Crew

Chad and the Veterinarians

TRUMPETER SWAN RESTORATION

Prior to the settlement of Iowa, trumpeter swans nested throughout the state. However, wetland drainage and unregulated hunting of trumpeters soon brought their demise. Prior to 1998, the last pair wild nesting trumpeter swans in Iowa occurred in 1883 on the Twin Lakes Wildlife Area southwest of Belmond, Iowa in Hancock County. Some 115 years later, the first modern day hatch of three wild trumpeter swan cygnets occurred in 1998 in Dubuque County.

In 2000, a second pair nested on a Winnebago County Conservation Board wetland (Russ Tract at Thorpe Park) 8 miles west of Forest City. This pair had 5 eggs. Unfortunately none hatched. We did; however, augment the nest with a sixth egg and it hatched providing this pair with a young cygnet to help bond the pair to the wetland nest site.

Trumpeter swans were first given nationwide protection in 1918 when the United States, Canada, and Mexico signed the International Migratory Bird Treaty. A nationwide swan count in the early 1930s indicated that only 69 existed in the continental United States with all those occurring in Red Rock Lakes National Wildlife Refuge in southwest Montana. The Red Rock Lakes became the nation's first National Wildlife Refuge because of the presence of these trumpeter swans.

In 1993, the Iowa Department of Natural Resources developed a plan to restore trumpeter swans to the state. Our original goal was to establish 15 wild nesting pairs to the state by the summer of 2003. That goal was reached in 2004. Our updated goal was to have 25 wild nesting pairs in Iowa by 2006, and that goal was reached in 2005. Our 2nd goal is to use the swans to "trumpet" the many positive values of wetlands not only for wildlife habitat for many rare and endangered plant and animal species, but for water quality improvement (nature's natural water filter), flood reduction, and groundwater recharge as well.

Iowa trumpeter swans are being obtained from 26 different states, including zoos, private propagators, other state swan projects, and any other sources that might have available swans, a total of 120 sources to date. We have been establishing flightless breeder pairs at appropriate sites, the young of which the DNR releases for free flight at other places across the state. We find it necessary to move young produced at these flightless pair sites otherwise they interfere with the following year's reproductive activity. The adult pair has to continually harass the young from their nesting territory.

Because trumpeter swans are nearing sustainable numbers, the DNR is currently phasing out of Trumpeter swan restoration. A detailed phase out plan is near completion. Thirty three partnership breeding pair sites are currently active. Through the summer of 2008 nearly all trumpeter swans released in Iowa were marked with plastic green or red neck collars and leg bands, along with U.S. Fish and Wildlife Service metal leg bands. The plastic neck collars and leg bands are marked with alpha letters C, F, H, J, K, P, T, M, and two numbers, 00 through 99. Many of the early FWS leg bands were made of soft aluminum metal and several of these dropped off. In 2004, we began using lock-on stainless steel FWS leg bands and we are not aware of any band losses since.

We are trying to obtain as much outside funding as possible. We were the fortunate recipients of $165,000 in

memory of David A. and Robert Luglan Sampson, formerly of Webster City. Numerous individuals, organizations, and corporations have contributed significant smaller dollar amounts. The Iowa Chapter of the Wild Sheep Association of North America has contributed over $4000 to Trumpeter Swan Restoration in recent years. Considerable soft match/in-kind contributions have been made and are conservatively estimated at over 1.5 million dollars. The Trumpeter Swan Program was also awarded a State Wildlife Grant (SWG) in 2004.

Twenty trumpeter swans were released in Iowa in 2013 (Table 1). A total of 1132 trumpeters have been released to date (Table 3). Iowa has the largest trumpeter swan observation database with over 3,800 observations of neck collared swans thru 2013. After 10 years of migration observations, the largest concentrations of migrating Iowa swans are wintering in northeast and east-central Kansas and northwest and west-central Missouri. One Iowa trumpeter swan wintered as far south as Oklahoma during the winter of 1998/1999. Also, one swan wintered near Heber Springs, Arkansas in 1999/2000. During the winter of 2002-2003, 2 swans released at Hottes Lake near Spirit Lake, Iowa, migrated to Lubbock, Texas. These are possibly the first known, or at least the first of very few interior swans to migrate to Texas since the 1880's. There have been 6 confirmed shootings of Iowa swans that occurred out-of-state, (1 in Wisconsin, 5 in Texas). A $17,000 fine was charged to four men in connection with the family group of 5 Iowa swans shot in Texas.

In 2001, the swans that nested at Union Slough NWR and Mallard Marsh wintered in southwest Arkansas. In the winter of 2003/2004, a record 9 (at that time) of 35 free flying trumpeter swans wintered near Webster City, Iowa. An estimated 75 to 100 trumpeter swans wintered in the state in 2003/2004. "Traditional" swan wintering sites are developing in Iowa. During the winter of 2004-2005, 15 trumpeters staged and spent a portion of their winter at private partner Bob & Mary Boock's property near Wheatland in east central Iowa. Twenty-four swans staged and spent most of the winter on a rock quarry pit in Atlantic in southwest Iowa. On Bill Beemer's Pond, a private partner site near Webster City, 61 trumpeter swans spent the winter and another dozen staged on that area before moving further south. During 2005-2006, the number of wintering/staging swans at Wheatland and Atlantic remained the same. At Bill Beemer's pond, wintering swans increased to 74 and near Mason City, Iowa on the Winnebago River, 13 free flying swans appeared. Nearly 100 swans wintered on Bill Beemer's pond near Webster City in 2008 and 2009. Approximately 50 swans wintered in Atlantic, about 35 swans wintered near Nora Springs, while about 20 wintered at our Great Ape partnership site in southeast Des Moines. During the record snowy and cold winter of 2009 and 2010 about 150 trumpeter swans wintered at Beemer's pond. 162 wintered at Beemers pond in winter 2010/11 with a total of 193 swans wintering in the state. Over 150 trumpeters wintered in Iowa each of the past 4 years (Table 4). A total of 747 trumpeters were tallied during the mid-winter waterfowl survey in January 2013. If swans can find open water during the winter, many of them will remain throughout the state. These "winter" sites have provided many people the opportunity to view this "charismatic-mega fauna."

Migration movements "out of that

norm" included 3 swans released at Union Slough NWR that migrated to and wintered in southeast Colorado near Ft Lyon. Two of these were observed at Monticello, Minnesota in the spring of 1997. The straight-line round trip mileage for these birds is over 1300 miles. An unusual swan movement during the winter of 2008-09 was reported in Virginia and that swan returned to Iowa and was reported near Waterloo during the summer of 2009. We have been disappointed that several of our marked swans have lost both plastic neck collars and legs bands and a few have lost the soft aluminum metal USFWS leg bands. A 9C lock on band is currently being used and should remain for a lifetime and for the last 4 years we have not neck collared any swans that have been released in Iowa. Neck collar losses create problems analyzing both movements and mortality of Iowa Trumpeter Swans.

A review of the last 11 years of swan sightings indicates most areas of the state are now seeing swans at sometime during the year. This is another indication that the restoration effort is moving forward. During 2006, 29 of our partnership pairs' nests hatched, producing nearly 90 young. Ten additional nests failed to hatch and about 2 dozen of the nearly 90 cygnets died of various causes. The invasion of West Nile Virus into Iowa had us cautiously concerned, but at this point we have seen little impact on the trumpeter swans. A new concern could be avian influenza. We hope, if that does occur, impacts will be minimal. The DNR is excited about the future of trumpeter swans in the state and it appears that free flying swans in Iowa are nearing sustainability.

Thru 2008, 274 known mortalities to date have occurred: 56 have died in power line collisions, 54 poached by violators, 27 died due to lead poisoning, 11 due to apparent malnutrition, and 34 to diseases. Several other mortalities have likely occurred from unknown and unreported causes. Mortality rates are somewhat higher than anticipated and could likely slow trumpeter swan restoration efforts, although our known swan nest attempts are still increasing. Iowa currently has the dubious distinction of having one of the highest shooting mortality rates of any state in the Midwest. We hope that with increased publicity, additional enforcement efforts, and public scrutiny, we will see the illegal shooting reduced. Shooting trumpeter swans results in a citation of $1500 in liquidated damages, court costs, and perhaps hunting license revocation. All wildlife populations are cyclic so we know that nest attempts will show ups and downs over the duration of the trumpeter restoration efforts. Each year there could also be 2 or 3 other nest attempts that we do not know about as we have had at least a few families of swans show up in the state in what we would consider earlier than when normal southward swan migration begins.

A major milestone was reached in 1998, 1999, and again in 2000, when the first and second free-flying trumpeters nested in Iowa since 1883. Seven free flying swans have bonded and mated with seven captive/pinioned swans and have produced eggs. Besides these, we have several pairs of Iowa swans nesting in Southern Minnesota and Wisconsin. Several trumpeters nesting just across the Iowa border into Minnesota and the one near Potosi, WI are the southern most nesting swans in the respective states. At least one Iowa bird, a male, was part of a nesting pair on the north shore of Lake Ontario. Also a pair attempted to nest in 2007 and successfully nested on the

Canadian shore of the boundary waters 2008.

High mortality of adults from illegal shootings had us greatly concerned that we may be negatively impacting wild nesting swans in future years. However, in 2002, we had 8 nest attempts in Iowa and 2 Iowa pairs nesting on the Wisconsin side of the Mississippi River. In 2003, we had 13 wild trumpeter swans nest attempts in Iowa and the same 2 Iowa pairs nesting on the Wisconsin side of the Mississippi River producing a record 44 young in the wild. In 2004, we had 4 new wild nesting pairs in Iowa, with a total of 14 wild trumpeter swans nest attempts in Iowa, 9 were successful. Fifty trumpeter swan nesting attempts occurred in 2011. Figure 1 shows the statewide distribution of these nesting attempts. Several additional Iowa released Trumpeter were reported nesting in MN and WI this year. In 2004, a pair of Iowa trumpeter swans nested, unsuccessfully, near Chillicothe, MO., giving hope that swans will nest on some farm ponds and perhaps our restoration efforts will spill over into Missouri. This pair has successfully hatched 3 cygnets near Dawn, MO, a few miles from their unsuccessful nest attempt of the previous year. In 2006, this pair's nest flooded out. Their first nest attempt in 2007, also flooded out, but in their renest attempt 1 cygnet hatched. This was the nesting attempt of trumpeter swans in Missouri in over 140 years. In 2008 and 2009 the pair was not present but one cygnet remains in the area of where it hatched in 3 years previous. A new milestone occurred in 2006 when a pair of Iowa trumpeter swans nested for the first time in nearly 160 years near Savanna, IL. Reports of a second pair of nesting trumpeter swans in the Savanna, Illinois has yet to be confirmed. This pair nested again in 2007 but was flooded out in 2008. In 2009 this pair nested again and successfully hatched 4 cygnets.

In 2013, 45 trumpeter swan nest attempts occurred in Iowa, slightly down from 49 nests in 2012 and 51 in 2011 (Figure 1). Since 1998, 391 known trumpeter swan nests have occurred in Iowa (Table 3). The 2013 spring flash flooding resulted in the loss of at least six swan nests in northern Iowa. Higher cygnet mortality was also observed in 2013. In 2012, dry weather and wetland conditions resulted in higher cygnet mortality and increased cases of lead poisoning. Many wetlands went completely dry in August and cygnets were forced to walk overland in search food and water.

Iowa has and continues to be a major player in the expansion of the interior trumpeter swan restoration efforts. The Iowa DNR believes that it is approaching sustainability of trumpeter swans in the state. Because we have the largest contingency of captive producing trumpeters in the U.S., we received approval to cooperate with the Trumpeter Swan Society, Arkansas Game and Fish Department, the Mississippi Flyway Council, and the Fish and Wildlife Service and release trumpeter swans in Arkansas. The plan was to release up to 40 swans that had flown in Iowa to hopefully get their "compass readings" and released them on the Buffalo National River and Holla Bend NWR in Arkansas. We captured and released 18 in 2008, 15 in 2009, and 16 in 2010. The intent is to see if these released swans will migrate north the first year and then in succeeding years return south to winter with additional swans from the northern states. So far Iowa swans released in AR - the first one was sighted in molting condition at Willow Slough in Fremont County in July of 2008. The second one apparently died

from a utility wire collision northeast of Clarinda, IA in April of 2010. Other reports include two swans in Otter Tail county MN, one in western IL, and one in Des Moines County, IA. As far as we know, the remaining swans are still in the vicinity of where they were released in Arkansas.

The Trumpeter Swan Society has made enhancing more southward migration one of their goals since its inception. Iowa trumpeter swan production will allow this goal to be tested to see if additional southward migration can be enhanced. This 3 year portion of the Iowa to Arkansas project was completed with the 2010 release. We will continue to explore the possibility of capturing family groups of wintering free flying birds in both Iowa and Minnesota and releasing them in Arkansas as a part of the effort to encourage more swans to migrate southward.

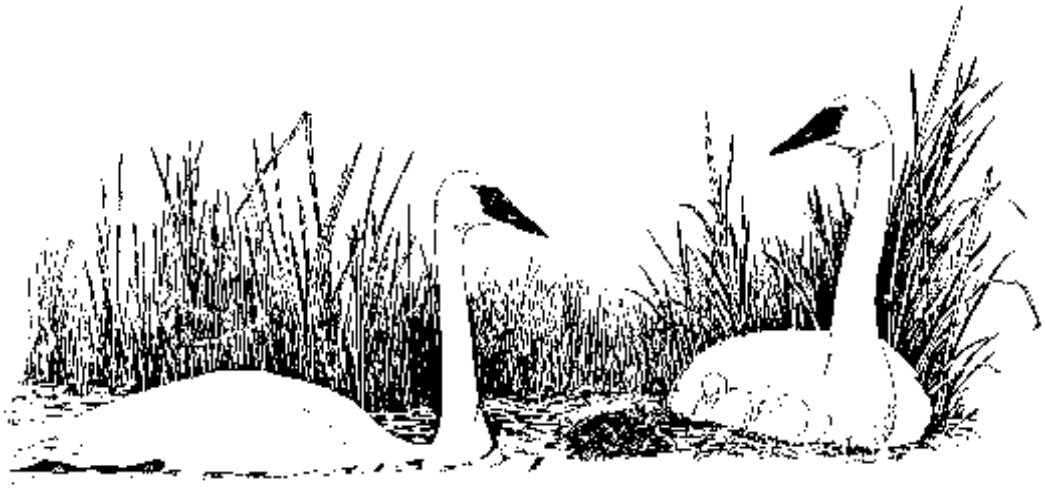
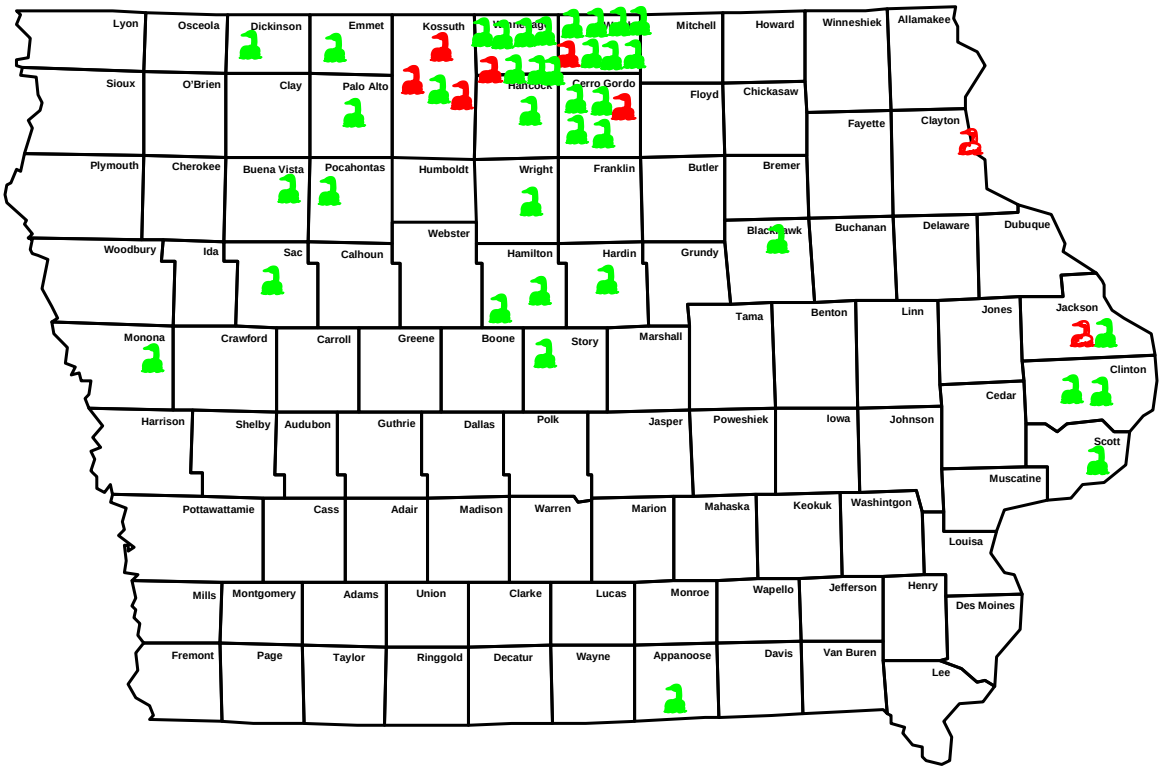


Figure 1. Wild Trumpeter Swan Nests 2013
45 nest attempts



Successful

Unsuccessful

Figure 2. Iowa Trumpeter Swan Nest Attempts

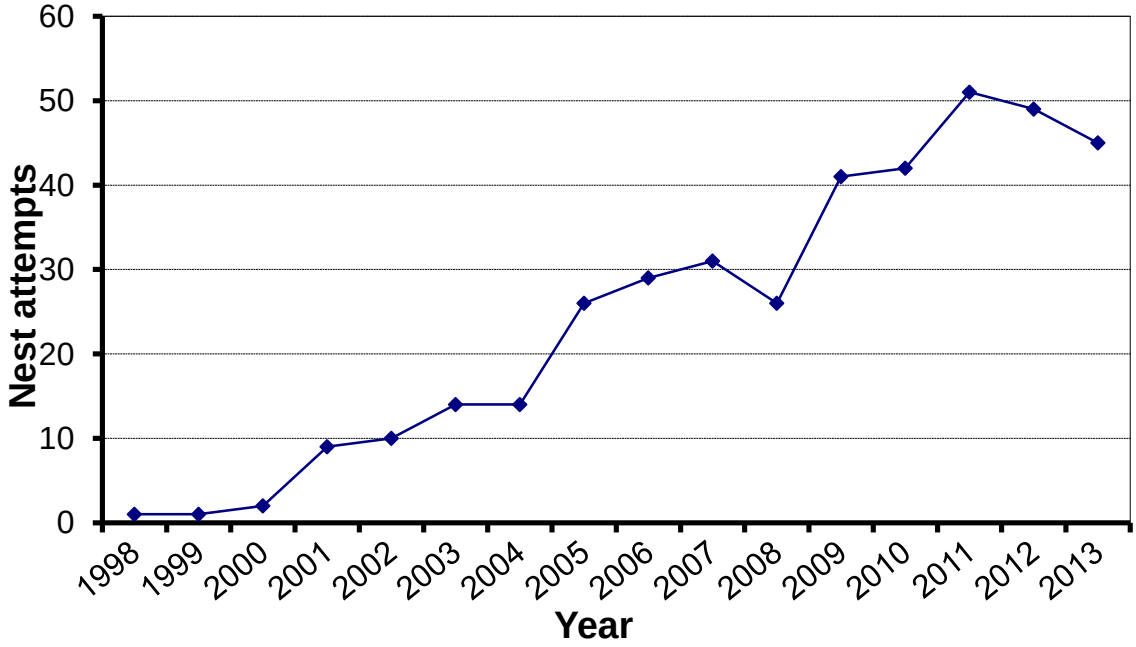


Table 1. Trumpeter swans released in Iowa 2013

Year	Release Site	County	Males	Females	Total
2013	Chris Lloyd Swan Site	Buena Vista	0	1	1
	Green Island WMA	Jackson	0	3	3
	Lake Anita State Park	Cass	0	3	3
	Lost Island Marsh WMA	Palo Alto	0	2	2
	Mt Ayr WMA Wetland	Ringgold	2	2	4
	Summit Lake	Union	1	2	3
	Viking Lake	Montgomery	1	3	4
				Total	20
				Grand Total	**1132**

Table .2. Wild free flying Trumpeter swans banded and released in Iowa, 1997 - present.

Year	Area	County	Males	Females	Total
1997	Miller's Quarry	Black Hawk	0	1	1
1998	Holzer's Pond	Dubuque	2	1	3
1999	Mason City	Cerro Gordo	3	2	5
2000	Holzer's Pond	Dubuque	2	1	3
2000	Mason City	Cerro Gordo	2	2	4
2000	Stark/Nessa Quarry	Hamilton	2	0	2
2001	Dunbar Slough	Greene	1	0	1
2001	Kennedy's Pond	Dubuque	1	1	2
2002	Holzer's Pond	Dubuque	3	1	4
2002	Schildberg Gravel Quarry	Cass	1	4	5
2002	East Twin Lake	Hancock	2	0	2
2003	Schildberg Gravel Quarry	Cass	2	2	4
2004	Schildberg Gravel Quarry	Cass	5	7	12
2004	Beemer's Pond	Hamilton	3	5	8
2005	Stark/Nessa Quarry	Hamilton	5	0	5
2006	Beemer's Pond	Hamilton	4	2	6
2006	Schildberg Gravel Quarry	Cass	0	1	1
2007	Ventura Marsh	Cerro Gordo	0	2	2
2008	Ventura Marsh	Cerro Gordo	0	1	1
				Total	**71**

Table 3. Wild free flying Trumpeter swans nest attempts and total number of released swans. 1994 - present.

Year	Wild Nest Attempts (known)	# of Broods	# Hatched	Mean brood size	~ # Fledged	Adult total	Captive Released	Estimated Population
1994	0	0	0		0		4	
1995	0	0	0		0		14	
1996	0	0	0		0		31	
1997	0	0	0		0		35	
1998	1	1	3	3.0	3		57	
1999	1	1	5	5.0	0		42	
2000	2	2	5	2.5	3		91	
2001	9	7	26	3.7	19		83	
2002	10	8	37	4.6	27		63	
2003	14	12	53	4.4	36		82	
2004	14	9	44	4.9	36		75	
2005	26	19	87	4.6	67	86	113	total =266 (Pop Survey Estimate)
2006	29	22	80	3.6	52		85	
2007	31	27	103	3.8	60		73	
2008	26	22	91	4.1	55		65	
2009	41	37	120	3.2	80		71	
2010	42	* 27 to 39	112	4.4	84	156	57	total =297 (Pop Survey Estimate)
2011	51	50	217				51	
2012	49	43	170	~3.9	119		20	
2013	45	38	114	~3.0			20	
	391		**1267**		**641**		**1132**	

Table 4. Wintering Trumpeters in Iowa

Year	Beemers*	Atlantic*	Boock*	Severe*	Mason City*	Fertile Quarry	Cedar Rapids	Est Total # in state
1997	5							
1998	4							
1999	4							
2000	4							
2001	25							
2002	25	26						75
2003	35	22						100
2004	61	24	15					100
2005	74	24	15		13			
2006	75	33						200
2007	84	37						
2008	100	50	12	35				
2009	150	50						
2010	100	32	25	36	0			193
2011	240	60	33	44	0			377
2012	160	45				52	23	747

*Beemer's Pond, 5 miles west of Webster City, IA Hamilton county
*Atlantic Quarry, 1 mile NW of Atlantic, IA Cass county
*Boock's Wetland, 4 miles North of Wheatland, IA Clinton county
*Laurie Severe Pond, 2 miles South of Nora Springs, IA Floyd county
*Mason City, 1 mile S of Mason City, IA Cerro Gordo county

OSPREY RESTORATION

Osprey, Pandion haleatus, commonly called the fish hawk or fish eagle, is neither a true hawk nor eagle. Ospreys are cosmopolitan and occur worldwide with the exception of Antarctica. The species is of ancient lineage and presently is classified near the kite family. There are four subspecies presently recognized, two occurring in North America, P.H. carolinenses and P.H. ridgwayi. Ridgwayi is found in the Bahamas and Caribbean, while carolinensis is the Midwestern species. Carolinensis is migratory in its northern range and resides in south Florida and possibly part of the Gulf coast and northwest Mexico.

Ospreys were never confirmed to historically nest in Iowa, but were probably here given the abundance of lakes and wetlands that dotted the prairie. Ospreys are very unwary birds and territorially appear weak. Pairs will nest colonially. Nests may be upon structure, manmade or natural, that provides a platform, but Ospreys have been known to nest on the ground. Nests are generally at least one-foot deep and four to five feet wide, are made of sticks and lined with grass. Highest productivity is attained on power poles and nesting platforms.

Ospreys were heavily affected by the biocide crash of the 1950s. Populations were severely reduced throughout the range but hardest hit in the Great Lakes and Atlantic coast. A strong fidelity to ancestral breeding areas slowed range expansion into vacant and newly created habitat since the DDT era.

With construction of lakes by Department of Natural Resources and reservoirs by U.S. Army Corps of Engineers, potential osprey habitat exists that was previously not available. There are numerous osprey summer sightings in Iowa, but apparently these young, non-breeding ospreys return to northern areas for mating and nesting. Despite this population growth, ospreys have demonstrated little breeding range expansion. Minnesota and Wisconsin DNR officials suggest that ospreys, in our lifetime, do not readily pioneer new breeding ranges. Instead they experience suppressed reproduction as density of breeders increase. To address this issue, young ospreys from Wisconsin and Minnesota are being relocated to areas with suitable habitat in southern Minnesota, Iowa, Kansas, Missouri and Ohio.

The Iowa Department of Natural Resources has assisted conservation partners with technical assistance, encouragement, and fish to successfully release ospreys in Iowa. The Macbride Raptor Project located near Coralville Reservoir has spearheaded this work. Beginning in 1997, four or five young ospreys have been released annually at their facility until 2002. Personnel at the Hartman Reserve Nature Center and volunteers in Cedar Falls initiated a release at their facility in 1998. Staff of Boone County Conservation Board and Polk County Conservation Board with volunteers coordinated a release at Saylorville Reservoir in 2000. Boone Co. staff and volunteers began releases at Don Williams Lake in 2003. Wickiup Hill in Linn Co. and Clear Lake were added in 2004. The U.S. Army Corps of Engineers has provided distinguished service for releases at Coralville and Saylorville Reservoir respectively. Assisted by literally hundreds of volunteers, these conservation organizations have devoted their efforts

to bring ospreys to Iowa as a nesting species. A four-year minimum commitment of releasing ospreys is required at each site. Project fundraising is the responsibility of the conservation organizations doing the releases. Ospreys cost about $500 per bird.

In Iowa, ospreys have two bands, a silver U.S. Fish and Wildlife Service band and a numbered, **lavender** band on separate legs. Forty-eight ospreys have been released at the three sites since 1997.

Beginning in 2000 Osprey released in SW Minnesota by Minnesota DNR, built a nest atop a microwave tower near Cayler Prairie in NW Iowa. In late winter Great-horned Owls were seen at the nest and tending young, however by April the Ospreys were once again nesting at the site. Incubation appeared to be progressing, but ultimately the nesting attempt failed. It was believed extremely violent storms were a factor in the demise of the nesting attempt. A second pair was also observed nest building in the Spirit Lake area. At Coralville reservoir a 1998 released Osprey was nest building with two other unidentified adult Osprey. The adults were seen feeding the year-class of 2001.

2002

In 2002 the Spirit Lake pair nested on a platform at the outdoor classroom area of Spirit Lake school. Tim Waltz with Big Sioux Wildlife unit coordinated the pole/platform placement at the school. In early July a single egg was discovered by Ed Heidenbrink and Don Poggensee, but no young were produced at the site. Also on a pole/platform near Cayler Prairie a nest was constructed at that site.

At Coralville reservoir a nest was constructed by A5 (Macbride 1998) and an unbanded female, but apparently no eggs were laid. These birds were joined by H2 (2000 Saylorville) feeding young hacked birds. Four Wisconsin Ospreys were placed at the site. However, two young died from heat stress prior to release.

At Saylorville a pair of wild birds E4 (Hartman 2000) and E1 (Macbride 2000) appeared at the site, strafing released birds and causing excitement. Five additional osprey were hacked from the site.

At Hartman Reserve Nature Center four additional Ospreys were hacked in 2002.

2003

In 2003 the Spirit Lake pair successfully nested at the outdoor classroom of Spirit Lake Middle School. One chick was banded July 10, 2003. It was the first Osprey chick to be banded in Iowa since European settlement of the area. The adult female was banded B/T and released in 1997 near Minnetonka, Minnesota by the Minnesota DNR. The heritage of the adult male is unknown.

Also in 2003 three Osprey chicks were produced at Macbride Recreational Area near Coralville Reservoir. The Macbride Raptor Project observed that the male, A5, was released from their facility in 1998. The female, H2, was released at Saylorville Reservoir by Polk County Conservation Board in 2000.

Fourteen additional Osprey were released at Hartman Reserve Nature Center near Waterloo/Cedar Falls, Don Williams Lake by Boone County Conservation Board, and Saylorville Reservoir by Polk County Conservation Board. Hopefully those Ospreys will prosper and banding young will occur at their sites in 2004. In 2003, 77 Osprey

have been relocated to Iowa with four wild-produced chicks.

2004

Spring 2004 brought four nesting attempts at three sites in Iowa. At Red Rock Reservoir, unit biologist, Chuck Kakac, reported two young fledging from remote nest observed from Runnels overlook.

Unfortunately, three nest attempts failed due to extreme climatic conditions. At Macbride the nest that was successful in 2003 blew down in high winds. Male A8 (Macbride 1998) was identified at this nest. A second nest at Macbride was constructed and occupied by an unidentified pair. At Spirit Lake Outdoor Classroom same pair attempted to nest again. Birder, Ed Thelen, observed male Osprey carrying something from nest then dropping it. He discovered a newly hatched chick, dead. At Saylorville an unidentified Osprey pair built nest on a platform at west-end of Mile Long Bridge during summer.

Two new release sites were established this year. Volunteers at Clear Lake constructed a release tower at Iowa Regular Baptist Camp along north shore of Clear Lake. Linn County Conservation Board staff and volunteers at Wickiup Hill coordinated a release. Both sites released five Ospreys from Chippewa Flowage region near Hayward, Wisconsin. Also an additional rehabbed Osprey from Wisconsin was released at Wickiup Hill.

Boone County Conservation staff and volunteers placed five Wisconsin Ospreys at Don Williams Reservoir. And volunteer staff at Hartman Reserve Nature Center placed four Wisconsin Ospreys at their site. Polk County Conservation staff and volunteers placed five Minnesota Ospreys at their site at Jester Park on banks of Saylorville Reservoir.

A total of 25 Ospreys were placed at five sites in 2004. Since 1997 105 Ospreys have been released at six sites. Six wild produced Ospreys have fledged from Iowa nests.

2005

Spring 2005 brought five known nesting attempts in Iowa. Unidentified pairs carried sticks and made nest attempts at Saylorville, Hartman Reserve Nature Center, Don Williams and Lake Macbride. A second nesting pair at Macbride fledged two young.

A total of five Ospreys came to Iowa from Minnesota and nineteen more were relocated from Wisconsin.

At Hartman a wild nesting pair appeared to be incubating but no hatching was noted. Four additional Wisconsin Ospreys were released.

At Don Williams a wild nesting pair carried sticks throughout summer but did not incubate. Five additional Ospreys were relocated from Minnesota.

At Clear Lake five additional Ospreys were relocated from Wisconsin.

At Linn County's site at Wickiup Hill Conservation board staff and volunteers released five additional Ospreys from Wisconsin.

A new site was constructed at Red Rock Reservoir by Marion Co. Conservation Board, DNR Parks, and Newton Correctional facility personnel. Five Ospreys were relocated from Wisconsin.

Since 1997 129 Ospreys have been released at seven sites. Eight wild Ospreys have been produced in Iowa.

A 2002 female from Saylorville, J4, paired with an unidentified male in Twin Cities. A nest was constructed and

female was apparently incubating, but male disappeared. Nest failed due to poor incubation it was believed. A replacement male was at nest site later in summer.

2006

In 2006 there were six nesting pairs reported and four successful nesting pairs fledged eight young. A total of ten Ospreys came to Iowa from Minnesota and fifteen more were relocated from Wisconsin. There were three rehabilitated Ospreys placed at White Rock Conservancy.

At Hartman Reserve Nature Center a wild nesting pair fledged two young. Male is H8 from 2001 release and female is unbanded.

At Lake Macbride personnel from Macbride Raptor Project reported two nesting pairs and one was successful. Adults J7 (Hartman 2003) and K8 (Hartman 2002) fledged two young.

At Don Williams a wild nesting pair fledged two young. However, one young was discovered dead at nest site. Necropsy revealed that it was not West Nile virus. Five additional Ospreys were relocated from Minnesota.

At Jester Park, Polk CCB report a pair E1 (Macbride 2000) and E4 (Hartman 2000) fledged two young.

At Linn County's site at Wickiup Hill, Conservation board staff and volunteers released five additional Ospreys from Wisconsin. A wild nesting pair appeared to be incubating but no chicks hatched.

At Clear Lake five additional Ospreys were relocated from Minnesota. However two young did not survive hacking process.

At Red Rock Reservoir Marla Mertz of Marion Co. Conservation Board and DNR Parks personnel released five Ospreys from Wisconsin.

A new site was established at White Rock Conservancy where five Wisconsin Ospreys were hacked. Three rehabbed birds from The Raptor Center were also released.

Since 1997 157 Ospreys have been released at eight sites. Sixteen wild Ospreys have been produced in Iowa.

2007

In 2007 there were nine Osprey nest attempts with five successful nests producing 12 young. A definition of success might be concluded at Macbride Raptor Project, located near Coralville Reservoir, where three nesting pairs fledged seven young. The most any site has released at one time are six relocated birds.

This year eleven Ospreys were brought to Iowa from Minnesota and nineteen were relocated from Wisconsin to five sites.

In conjunction with three wild nesting birds at Macbride, a nesting pair returned to Jester Park and fledged one young. Another successful nesting occurred at Don Williams in Boone Co., where three young were banded. An unidentified pair at Rathbun Reservoir constructed a nest tih one egg that was abandoned due to high water up to the nest.

In Cedar Falls, pair returned to successful nest site. However, last year's nest had been removed by *iwireless* cell phone company. Pair reconstructed new nest on nearby cell phone tower, but later abandoned the site.

At Wickiup Hill in Linn Co. pair returned to nest site established in 2006. Pair appeared to be incubating but did not hatch. In July a nest site was

discovered on 280 ft. meterological tower at Duane Arnold nuclear plant near Wickiup Hill. It is believed to be a separate nesting pair with critical details omitted. It has not been determined if adults are banded, or the outcome of nesting attempt.

Also, Linn CCB staff and volunteers placed five Wisconsin young and one rehabbed bird from Minnesota at Wickiup Hill.

At Clear Lake six Wisconsin young were placed by volunteers.

At White Rock Conservancy there were six Wisconsin young placed by SOAR and volunteers.

At Red Rock there were four Minnesota and two Wisconsin young placed by Marion CCB, Ia. DNR, and volunteers.

At Spirit Lake Dickinson CCB, Tim Waltz with DNR, and volunteers placed six Minnesota young at this new site.

Since 1997 187 Ospreys have been released at nine sites. Thirty wild Ospreys have been produced at 15 nests, since 2003.

2008

In 2008 there were eleven Osprey nest attempts with two successful nests producing six young. This year ten Ospreys were brought to Iowa from Minnesota and ten were relocated from Wisconsin to five sites.

A new nesting pair was discovered just south of Sioux City in Woodbury Co. Three young fledged from this site according to Jerry Von Ehwegen.

There were four wild nesting pairs at Macbride. Three young from nest at Jester Park were rescued before nest flooded over. All three survived and two were released at White Rock Conservancy. Another nesting occurred at Don Williams in Boone Co. but fierce storms after hatching destroyed the young.

In Cedar Falls, pair returned to successful nest site. However, last year's nest had been removed by *iwireless* cell phone company. Pair reconstructed new nest on nearby cell phone tower, but nesting attempt failed.

At Wickiup Hill in Linn Co. pair returned to nest site established in 2006. Three young hatched but did not survive fierce storm in June. Second pair at Duane Arnold did not appear to be successful in 2008.

Nest at Rathbun Lake was swamped by June floods again. And a new pair were observed by Jay Gilliam creating a nest near Walnut Woods in Polk Co.

Four wild nesting pairs at Macbride/Coralville Reservoir failed due to extreme weather conditions.

At Clear Lake two Wisconsin and two Minnesota young were placed by volunteers.

At White Rock Conservancy there were three Minnesota Osprey young placed. Additionally two wild-produced young from Jester Park nest were released successfully.

At Red Rock there were two Minnesota and two Wisconsin young placed by Marion CCB, Ia. DNR, and volunteers.

At Spirit Lake Dickinson CCB, Tim Waltz with DNR, and volunteers placed four Minnesota young.

At Mudlake in Dubuque the Dubuque CCB and University of Dubuque volunteers released four Wisconsin Ospreys at this new site.

Since 1997 209 Ospreys have been released at ten sites. 33 wild

Ospreys have been produced at 16 successful nests since 2003.

2009

In 2009 there were twelve Osprey nest attempts with eight successful nests producing 17 young. This year ten Ospreys were brought to Iowa from Minnesota and ten were relocated from Wisconsin to five sites.

There is a nesting pair just south of Sioux City near Sergeant Bluffs in Woodbury Co. Three young fledged from this site according to Jerry Von Ehwegen. A zero was observed upon band of adult female.

There were three wild nesting pairs at Macbride. Site off Scales Bend Road were believed to have relocated from Coralville Reservoir. Three young were produced. Unable to read adult bands, if any. Site at Sugar Bottom has one young. Female is unbanded and male is unconfirmed. Site at Lake Macbride had three young. One of adults has a purple band.

At Jester Park in Polk CCB two young were banded from pair that relocated from Lodge area to campground #6. A new pair at Walnut woods built sizable nest but were unsuccessful.

At Don Williams, Boone CCB banded two young.

In Cedar Falls, a pair returned to successful nest site upon *iwireless* cell phone tower. However, last year's nest had been removed by *iwireless* cell phone company. Pair reconstructed new nest lower on cell phone tower, but nesting attempt failed. Second pair at George Wythe was active but nested unsuccessfully. One adult is AT from White Rock 2006. Third pair at Don Miller's quarry were unsuccessful. Fourth pair at Gilbertville fledged two.

At Duane Arnold Plant pair from Wickiup Hill in Linn Co. produced one young.

Nest at Rathbun Lake was inactive.

At Spirit Lake four young from Minnesota were placed by Dickinson CCB staff and volunteers. One young perished due to West Nile Virus before release.

At White Rock Conservancy Kay Neumann and Saving Our Avian Resources staff placed four Minnesota Osprey young.

At Mud Lake in Dubuque the Dubuque CCB and University of Dubuque volunteers released five Wisconsin Ospreys.

At Annett Nature Center Missy Smith and Warren CCB staff and volunteers placed five Wisconsin Ospreys.

At Red Rock two Minnesota Ospreys were released by Marla Mertz with Marion CCB.

Since 1997 228 Ospreys have been released at eleven sites. 50 wild Ospreys have been produced at 24 successful nests since 2003.

2010

In 2010 there were 17 Osprey nest attempts with 14 successful nests producing 22 young. This year 12 Ospreys were brought to Iowa from Minnesota and nine were relocated from Wisconsin to five sites.

There is a nesting pair just south of Sioux City near Sergeant Bluffs in Woodbury Co. Two young fledged from this site according to Jerry Von Ehwegen. A zero was observed upon band of adult female. Also according to Von Ehwegen, there was one new nests in Monona Co. fledging one,.

There were three wild nesting pairs at Macbride. Site off Scales Bend Road were believed to have relocated from Coralville Reservoir. Three young were produced. Staff were unable to read adult bands, if any. Site at Sugar Bottom has one young. Female is unbanded and male is unconfirmed. Site at Lake Macbride had three young. One of adults has a purple band.

At Jester Park in Polk CCB two young were banded from pair that relocated from Lodge area to campground #6. A new pair at Walnut Woods built sizable nest in 2009 and produced two young. A new nest was built at Polk City Refuge. Adults were not identified but male had green USFWS band indicating it was hatched in Iowa. This is first evidence of F2 generation of ospreys in Iowa.

At Don Williams, Boone CCB banded two young. However six days later, young were dead. West Nile Virus is suspected.

In Cedar Falls, a pair returned to successful nest site upon *iwireless* cell phone tower. However, last year's nest had been removed by *iwireless* cell phone company. Pair reconstructed new nest lower on cell phone tower, but nesting attempt failed. Second pair at George Wythe was active but nested unsuccessfully. One adult is AT from White Rock 2006. Third pair at Don Miller's quarry were unsuccessful. Fourth pair at Gilbertville fledged two.

At Duane Arnold Plant pair from Wickiup Hill in Linn Co. produced two young. A second Linn Co. nest was reported south of Palo in August.

Nest at Rathbun Lake was flooded again

At Spirit Lake a pair nested near release site. Two young hatched and were banded, however, 30 day old chicks did not survive ferocious July storms. Two young from Minnesota were placed by Dickinson CCB staff and volunteers and successfully fledged.

At White Rock Conservancy Kay Neumann and Saving Our Avian Resources staff placed four Minnesota Osprey young.

At Mud Lake in Dubuque the Dubuque CCB and University of Dubuque volunteers released four Wisconsin and one Minnesota Ospreys.

At Annett Nature Center Missy Smith and Warren CCB staff and volunteers placed five Wisconsin and one Minnesota Ospreys.

At Red Rock four Minnesota Ospreys were released by Marla Mertz with Marion CCB.

In summary 17 nesting pairs had 14 successful nest attempts with 22 young produced. Since 1997 249 Ospreys have been released at eleven sites. Seventy two wild Ospreys have been produced at 38 successful nests since 2003.

2011

In 2011 there were 16 Osprey nest attempts with 12 successful nests producing 30young. This year ten Ospreys were brought to Iowa from Minnesota and seven were relocated from Wisconsin to five sites.

There is a nesting pair just south of Sioux City near Sergeant Bluffs in Woodbury Co. Two young fledged from this site according to Jerry Von Ehwegen. Also according to Von Ehwegen, a nest in Monona Co. near Sloan had three young.

There were four wild nesting pairs at Macbride. Site off Scales Bend Road produced three young. Site at Sugar Bottom had three young. Site at

Lake Macbride had three young. Pair at Curtis Bridge is unknown.

At Jester Park in Polk CCB two young were produced at campground #6. Nesting pair at Walnut Woods was unsuccessful. Nesting pair at Polk City Refuge was unsuccessful. Adults were not identified but male had green USFWS band indicating it was hatched in Iowa. This is first evidence of F2 generation of Ospreys in Iowa.

At Don Williams, Boone CCB reported two young.

In Cedar Falls, a pair returned to successful nest site upon *iwireless* cell phone tower and produced two young. Second pair at George Wythe was active but nested unsuccessfully. One adult is AT from White Rock 2006. Evansdale nest was unsuccessful. Fourth pair at Gilbertville fledged two.

At Duane Arnold Plant pair from Wickiup Hill in Linn Co. produced three young. A second Linn Co. nest south of Palo Nest produced two.

At Spirit Lake pair nested near release site. Three young were produced. One young from Minnesota was placed by Dickinson CCB staff and volunteers and successfully fledged.

At White Rock Conservancy Kay Neumann and Saving Our Avian Resources staff placed five Minnesota Osprey young.

At Mud Lake in Dubuque the Dubuque CCB and University of Dubuque volunteers released two Wisconsin and two Minnesota Ospreys.

At Annett Nature Center Missy Smith and Warren CCB staff and volunteers placed five Wisconsin Ospreys.

At Red Rock two Minnesota Ospreys were released by Marla Mertz with Marion CCB.

In summary 16 nesting pairs had 12 successful nest attempts with 30 young produced. Since 1997 266 Ospreys have been released at eleven sites. One hundred two wild Ospreys have been produced at 50 successful nests since 2003.

2012

In 2012 there were 16 Osprey nest attempts with 14 successful nests producing 32 young. This year nine Ospreys were brought to Iowa from Minnesota and five were relocated from Wisconsin to three sites.

At White Rock Conservancy Kay Neumann and Saving Our Avian Resources staff placed three Minnesota Osprey young at Swan Lake in Carroll Co.

At Annett Nature Center Missy Smith and Warren CCB staff and volunteers placed four Minnesota Ospreys. Nest building has been documented at the release site.

At Mud Lake in Dubuque the Dubuque CCB and University of Dubuque volunteers released five Wisconsin young.

There is a nesting pair just south of Sioux City near Sergeant Bluffs in Woodbury Co. Two young fledged from this site according to Jerry Von Ehwegen. A zero was observed upon band of adult female. Also according to Rich Pope, there were two young fledged from site near Solon in Monona Co.

There were three wild nesting pairs at Macbride. Site off Scales Bend Road were believed to have relocated from Coralville Reservoir. Three young were produced. Staff was unable to read adult bands, if any. Site at Sugar Bottom has one young. Female is unbanded and male is unconfirmed. Site

at Lake Macbride had three young. One of adults has a purple band.

At Jester Park in Polk CCB two young were banded from pair at campground #6. Pair at Walnut Woods built sizable nest in 2009 and produced two young. Nest at Polk City Refuge was inactive.

At Don Williams, Boone CCB reported two young.

In Cedar Falls, a pair returned to successful nest site upon *iwireless* cell phone tower. However, last year's nest had been removed by *iwireless* cell phone company. One adult is AT from White Rock 2006. Pair reconstructed new nest lower on cell phone tower, but nesting attempt failed. Pair at Evansdale produced two young. Pair at Gilbertville fledged two.

At Duane Arnold Plant pair from Wickiup Hill in Linn Co. produced two young. A second Linn Co. nest south of Palo fledged two young. A possible third nesting pair is in area.

At Spirit Lake a pair nested near release site. Two young fledged. A new nest at Lower Gar fledged one young. In summary 17 nesting pairs had 14 successful nest attempts with 27 young produced. Since 1997 282 Ospreys have been released at twelve sites. 106 wild Ospreys have been produced at 66 successful nests since 2003.

2013

In 2013 there were 18 Osprey nest attempts with 14 successful nests producing 32 young. This year nine Ospreys were brought to Iowa from Minnesota and released at three sites.

At White Rock Conservancy Kay Neumann and Saving Our Avian Resources staff placed two Minnesota Osprey young. In addition three young were released at Swan Lake in Carroll Co.

At Mud Lake in Dubuque the Dubuque CCB and University of Dubuque volunteers released four Minnesota young.

At Annett Nature Center Missy Smith, Warren CCB naturalist reported pair nest-building but did not proceed to nesting.

There were five wild nesting pairs at Macbride. Site off Scales Bend Road were believed to have relocated from Coralville Reservoir. Three young were produced. Staff was unable to read adult bands, if any. Site at Sugar Bottom has one young. Female is unbanded and male is unconfirmed. Site at Lake Macbride had three young. One of adults has a purple band. There is a new nest near Solon High School parking lot.

At Jester Park in Polk CCB two young were produced from pair at campground #6.

Pair at Walnut Woods built sizable nest in 2009 and produced two young.

A new nest was active one mile east of Big Creek but nest-building was noted in August so this site was unsuccessful.

At Don Williams, Boone CCB reported two young.

In Cedar Falls, a pair returned to successful nest site upon *iwireless* cell phone tower. However, last year's nest had been removed by *iwireless* cell phone company. One adult is AT from White Rock 2006. Pair produced two young. Pair at Evansdale produced two young.

At Duane Arnold Plant pair from Wickiup Hill in Linn Co. produced two young.

A second Linn Co. nest south of Palo fledged two young. A possible third nesting pair is in area.

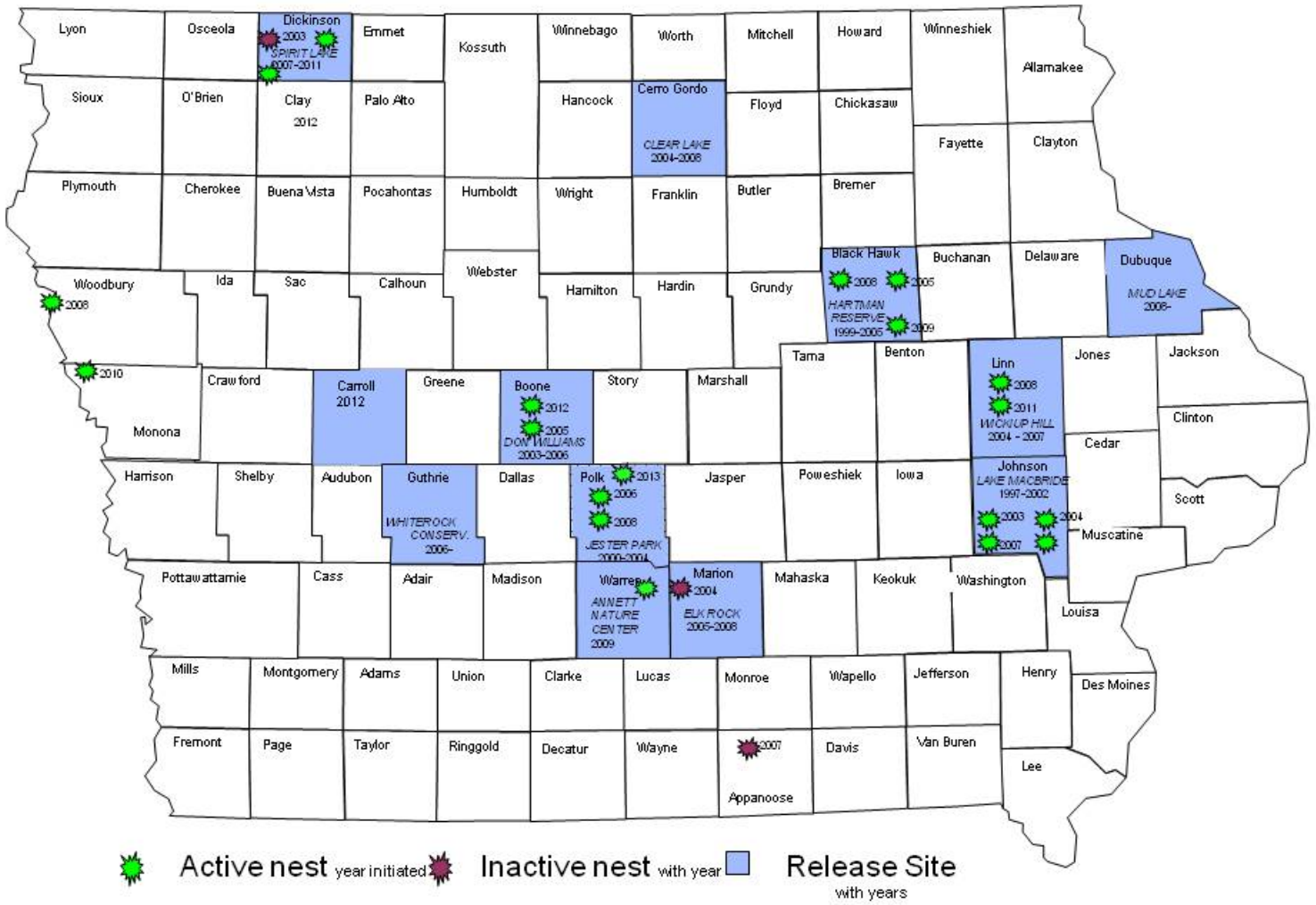
At Spirit Lake a pair nested near Nature Center release site. Three young fledged.

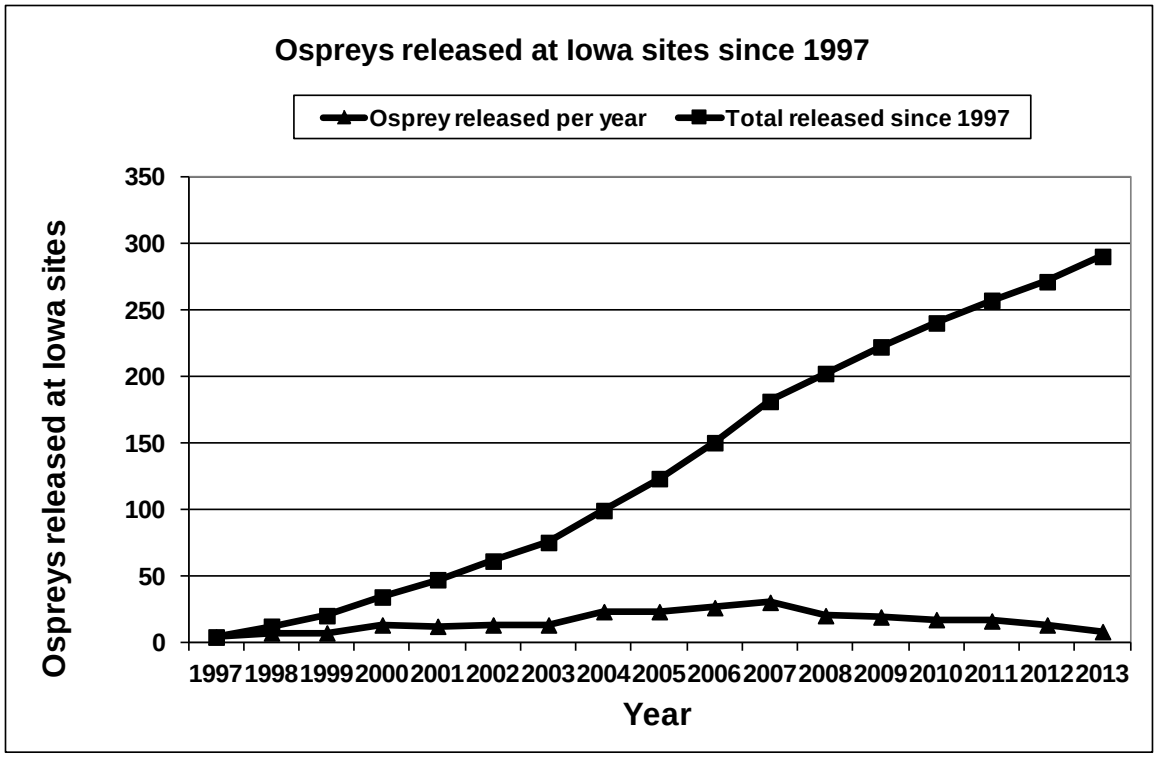
A new nest at Lower Gar fledged two young.

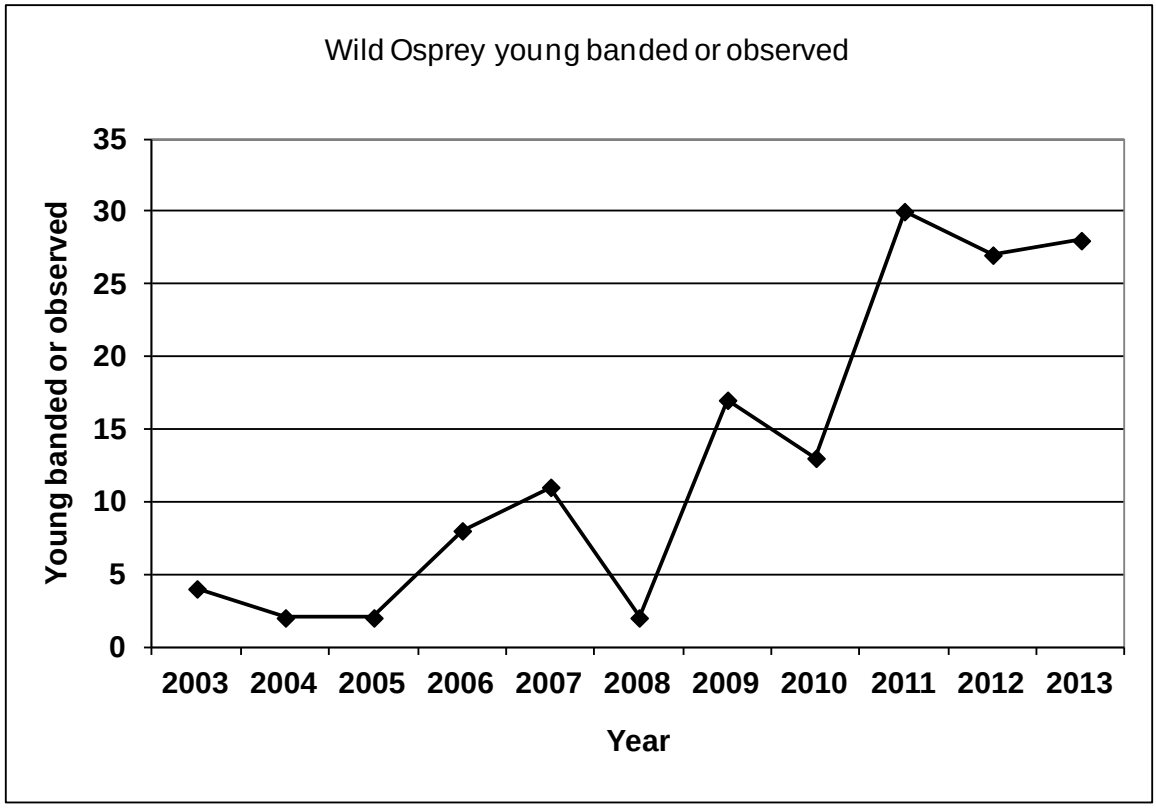
There is a nesting pair just south of Sioux City near Sergeant Bluffs in Woodbury Co. However nest material had been removed by cell phone tower staff and nesting was unsuccessful according to Jerry Von Ehwegen. Also according to Rich Pope, there were two young fledged from farmsite south of Sloan in Monona Co.

In summary 18 nesting pairs had 14 successful nest attempts with 28 young produced. Since 1997 291 Ospreys have been released at twelve sites. Since 2003, 134 wild Ospreys have been produced at 80 successful nests.

Ospreys in Iowa 2013




Ospreys released at Iowa sites since 1997
Osprey released per year
Total released since 1997
Ospreys released at Iowa sites
350
300
250
200
150
100
50
0
1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013
Year


Wild Osprey young banded or observed
Young banded or observed
35
30
25
20
15
10
5
0
2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013
Year

SANDHILL CRANES IN IOWA

Prior to European settlement of Iowa, Sandhill Cranes probably were a common nesting species and abundant migrants. As early as 1820, Edwin James saw large flocks of cranes migrating north along the Missouri River in Harrison County. Even in the 1890's, it was not uncommon to see flocks of hundreds or even thousands of cranes in Winnebago and Hancock Counties in spring. Although there are few specific records, Sandhill Cranes probably were fairly common nesters in north-central and northwest Iowa. With settlement, the combination of unregulated hunting and loss of nesting habitat led to a rapid disappearance of nesting cranes from Iowa. The last Sandhill Crane nesting of that era was at the headwaters of the Iowa River near Hayfield in Hancock County in May 1894. As was common in those days, the eggs were taken for an egg collection.

Cranes nest in shallow wetlands with dense vegetation. They create a nest mound by pulling up marsh plants and laying one to three eggs that hatch in late spring. About three months after hatching the young begin to fly, but the brownish-colored young remain with their parents throughout their first winter. Cranes eat waste grain, seeds, berries, roots, tubers, snakes, frogs, crayfish, worms and insects.

By the early 1900s, even migrating Sandhill Cranes were rare in Iowa. For the next 60 years, there are very few reports of cranes in Iowa. Throughout the Midwest, problems similar to Iowa's caused Sandhill Crane populations to dwindle. Just a few dozen pairs remained in Wisconsin, Minnesota and Michigan through the 1940s. During the 1970s and 1980s, however, nesting populations increased in the northern states, and a few migrating sandhills were seen in Iowa.

The number of Sandhill Cranes reported in Iowa increased greatly in the late 1970s and 1980s (Dinsmore 1989), culminating in their return as a nesting species. Nesting birds derive from populations in Wisconsin, which increased greatly in the 1970s and 1980s (Robbins 1992) and eventually spilled over into Iowa. These birds winter in Florida and Georgia. The huge flocks that gather in central Nebraska nest in the Arctic. Those flocks are probably the source of most cranes seen in western Iowa (Kent and Dinsmore 1996).

In 1992, after a 98-year absence, Sandhill Cranes successfully nested in Iowa at Otter Creek Wildlife Management Area in Tama County. Two colts were produced. In 1993, cranes also attempted to nest at a second area at Green Island along the Mississippi River in Jackson County, however due to annual flooding, young were not produced at that site until 1997. In the mean time cranes at Sweet Marsh became established and successfully nested, beginning in 1994. The Sweet Marsh flock has grown to include four other sites in Bremer Co.

<u>2002</u>

In 2002, Sandhill Cranes were observed in four new sites. Reports were received of cranes sited in Clinton and Chickasaw County. Allamakee County picked up another site where young were produced and in western Iowa, young were produced in

Woodbury County. Cranes have been included in bird counts in at least 14 counties during the year.

2003

In 2003 unison calling between adults increased to 27 pairs around the state. There were 95 known sightings and fifteen documented young around the state. Dr. Jim Dinsmore provided a sightings file that included a number of counties where cranes were seen in recent years.

In Boone County a nesting pair had wintered at a farmstead south of Madrid. The pair performed nesting courtship displays and created a nest in the farmyard. Two eggs were laid in the spring. In April the nest and eggs were destroyed. Raccoons or dogs were suspected. In June a Sandhill Crane carcass was discovered in the vicinity of the nest near powerlines. The fate of this unconventional pair is unknown.

2004

In 2004 cold, wet spring conditions hampered Sandhill Crane nesting in Iowa. Twenty-seven pairs of cranes were reported but only seven young hatched. However, most sites had summering cranes and additional pairs were reported near Belle Plaine, Chickasaw Co., and Olin in Jones Co. Jones County became fifteenth county documenting crane nesting.

2005

Exciting news in 2005 includes successful nesting of cranes in Winnebago County. CCB Director, Robert Schwartz, reported a colt at Hogsback Wildlife Area. Also DNR Biologist, Bill Ohde, reported a new pair at Wiese Slough in Muscatine County that produced one young. Ric Zarwell, in Allamakee Co., reported four pairs with four young. Across the state 20 pairs were reported with nine pairs that successfully reproduced 13 young. Including Winnebago and Muscatine Counties, Sandhill Cranes have now been reproduced in 17 counties.

2006

In 2006 a favorable nesting season has maintained our Sandhill Cranes nesting population at 17 counties. Two notable crane sightings occurred when Whooping Cranes were reported in Iowa. During spring migration five whoopers stayed over in Winnebago Co. A second flock of eight whoopers were discovered in northeastern Iowa. By early June all had left Iowa and returned to their home at Necedah National Wildlife Refuge in Wisconsin. In September three of the five Whoopers returned to Winnebago Co. As of 2005 there were only 336 whoopers in the wild and 135 in captivity.

2007

In 2007 Sandhill Crane sightings were included in three new counties: Palo Alto, Greene, and Madison Counties. Also Crane reproduction was noted at Chichaqua Bottoms in Polk Co. bringing our total to 18 counties with cranes successfully nesting.

Also, during this past summer there were record numbers of Whooping Crane chicks hatched at Wood Buffalo National Park in northern Canada. An aerial survey of the breeding grounds found 65 nests and 84 new chicks. The new Whooping Crane chicks include 28 sets of twins. This year's offspring come after last year's encouraging numbers of 76 new chicks - including 24 sets of twins.

2008

Record flood levels in 2008 suppressed nesting crane reproduction around the state, but good numbers have been frequenting our marshes during autumn migration of 2007. Otter Creek Marsh in Tama Co. and Sweet's Marsh in Bremer Co. reported flocks of 25 and 27 birds last autumn. This nesting season Sweet Marsh reported 15 birds with five unison calling pairs. Otter Creek had 18 cranes with two pairs producing one young each. Allamakee Co. distinguished itself with 22 cranes sighted during spring survey and four unison calling pairs. Although there has been limited growth of crane population and subsequent reports around the state, cranes are increasingly appreciated by birding community and conservation groups dedicated to providing marshland habitat around the state.

2009

In 2009 the weather during the crane survey in April was quite favorable. Twenty five pairs have been reported with two counties, Muscatine and Woodbury, including crane sightings after a few years of not recording any sightings. With suitable nesting habitat being emphasized in every county, it is hopeful Sandhill Cranes will maintain their incremental growth in reproduction. A pair near Comanche, Iowa raised young at a five acre wetland near Hwy 30.

2010

Wetland conditions during the Crane Survey in April, 2010 were quite favorable for successful nesting as record snowfall provided the melt water to fill wetland basins. With a wetter than normal summer we should see moderate population changes, if summer 2010 flooding is similar to the 2008 flooding around Iowa. At this time, good reproduction has occurred at enough sites to maintain our optimism that Iowa's Sandhill Crane population is continuing to increase. Autumn flights of cranes around Pool 9 of the Mississippi River, Otter Creek Marsh and Sweet's Marsh are providing outdoor enthusiasts opportunities to see Cranes on Iowa wetlands. About 110 cranes were observed during this spring's survey. Nesting success was confirmed for 11 pairs, resulting in a 2010 production of 14 colts.

2011

Wetland conditions during April, 2011 were good, but the weather on survey day was challenging with 35 degrees and wind gusts to 40mph. With a wetter than normal spring we will see moderate population ebbs and flows. However, good reproduction has occurred in enough sites to maintain our optimism that our Sandhill Crane population continues to increase. Most exciting area that cranes have discovered is Mitchell Co. along Cedar River in north central Iowa. Cranes have reproduced in 22 counties since 1992. Autumn concentrations of cranes around pool nine on the NE Iowa portion of the Mississippi River, Otter Creek Marsh and Sweet's Marsh are providing outdoor enthusiasts spectacular flights and social interactions of Cranes adapting to Iowa's wetland complexes.

Each autumn Iowa's Sandhill Cranes are establishing concentration or staging areas at Sweet Marsh where 35 have been reported, Green Island Bottoms along Mississippi River in Jackson co. with 35 more, and Otter Creek Marsh in Tama County where 54 were reported in October, 2010. This is

an exciting development that has grown incrementally since the first successful nesting at Otter Creek Marsh in 1992.

2012

Wetland conditions during April, 2012 were exceptional throughout the nesting season. Summer drought conditions created wildlife hardships but cranes fared as well or better than the majority of species surveyed. Good reproduction has occurred in enough sites to maintain our optimism that our Sandhill Crane population continues to increase. Cranes have reproduced in 21 counties since 1992. Autumn concentrations of cranes around pool nine on the NE Iowa portion of the Mississippi River, Otter Creek Marsh and Sweet's Marsh are providing outdoor enthusiasts spectacular flights and social interactions of Cranes adapting to Iowa's wetland complexes.

Each autumn Iowa's Sandhill Cranes are establishing concentration or staging areas at Sweet Marsh where 42 have been reported a record high, Green Island Bottoms along Mississippi River in Jackson co. with 35 more, and Otter Creek Marsh in Tama County where 107were reported in October, 2011. This is an exciting development that has grown incrementally since the first successful nesting at Otter Creek Marsh in 1992.

2013

Weather conditions during April and May were wetter and colder than normal in 2013. The interior Crane nesting areas in Tama and Bremer counties saw precipitation that was 10 inches above normal during May, and May snowfall totals of 4 to 8 inches. Following the severe flooding of May the precipitation ceased and a drought persisted throughout the summer.

Crane reproduction was reported at enough sites to maintain our optimism that our Sandhill Crane population continues to increase. Cranes have reproduced in 21 counties since 1992. Autumn concentrations of cranes around pool nine on the NE Iowa portion of the Mississippi River, Otter Creek Marsh and Sweet's Marsh are providing outdoor enthusiasts spectacular flights and social interactions of Cranes adapting to Iowa's wetland complexes.

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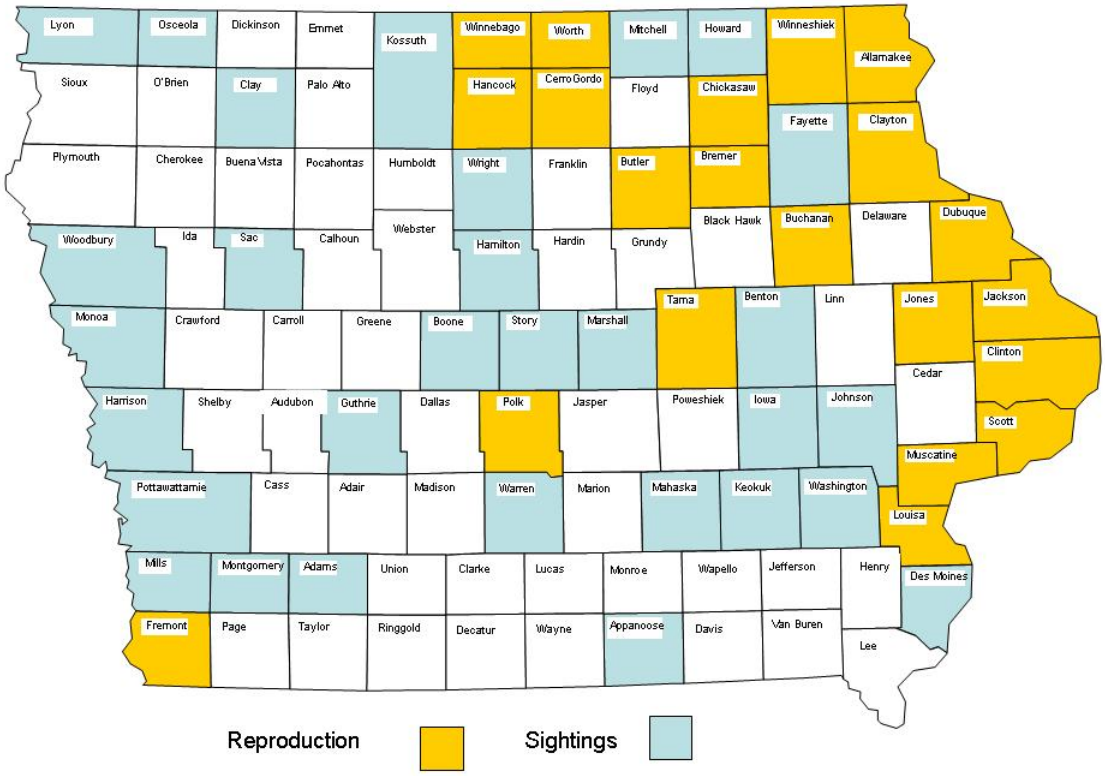
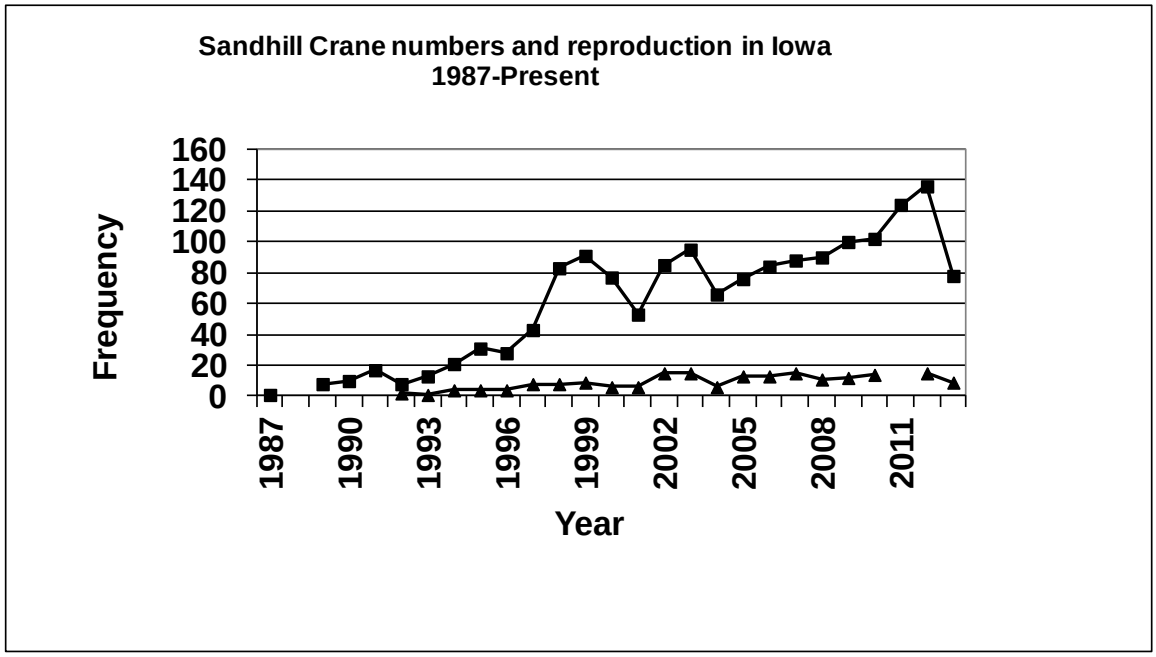
In November 2012 there were 98 cranes reported statewide with 35 at Sweet Marsh, 40 at Otter Creek and 18 at Green Island. Crane calling was noted at Kirchner Prairie marsh in Clay Co. in mid Nov.

In October 2013 there were 78 reported with the majority, 59, at Otter Creek Marsh. Temperate autumn conditions have resulted in a slower than normal migration but cold fronts in the forecast will create change. Anticipation is high that Iowa's growing crane population will continue upward trends.

Observations of Sandhill Cranes in Iowa through 2011





BALD EAGLE RESTORATION

HISTORICAL REVIEW

When Euro-Americans first arrived in Iowa, it is likely that bald eagles nested throughout the state, particularly in the woodlands along rivers, streams, and fish infested lakes. As forests were cut and the woodland habitat occupied by eagles was altered, eagle numbers declined. Direct persecution (mostly shooting) and changes in eagle habitat, particularly nesting habitat, appear to have eliminated the bald eagle as an Iowa nester by the early 1900s. Early records for the bald eagle in Iowa do not give us a good idea of how many nests there once were for this species, but we do know that eagles were "formerly common in Iowa and frequently nested in favorable localities" (Anderson 1907). It appears that the last nest documented near the turn of the last century was in Jasper County in 1905, where two young eaglets were taken from a nest near Kellogg (Anderson 1907).

The passage of the Federal Bald Eagle Protection Act of 1940 was the first real effort to protect eagles, especially from shooting. The use of organochlorine pesticides (such as DDT) after World War II also severely devastated eagle populations (Broley 1958, Carson 1962). It was only after the banning of organochlorine pesticide use in this country in 1972 and the listing of the bald eagle for protection on the Endangered Species Act in 1978 that this species began to recover. The bald eagle was considered an extirpated species on Iowa's first threatened and endangered species list in 1977 (Roosa 1977), and it was not again expected to be seen nesting in Iowa.

MORE RECENT IOWA NESTING RECORDS

As improbable as it seemed, the bald eagle did nest in Iowa again. The first nest noted in over 70 years was located near New Albin on the Mississippi River floodplain in 1977 (Roosa and Stravers 1989). Two young were produced that first year, but it was not until 1980 that another eaglet was produced from that nesting territory. In 1984, Dinsmore et al. (1984) considered the bald eagle a rare summer resident. It was in 1985 that a second Iowa eagle nest appeared, just three miles downstream from the first. That nest produced three young. During 1986, a third nesting territory appeared in Allamakee County on the Mississippi River, and a fourth occurred in Jackson County. The first documented nest away from the Mississippi River was found in 1987 along the Skunk River near Coppock in Jefferson County (Figure 15.1). The following year there were eight active nests reported. Two more new nests were discovered away from the Mississippi River, one in Allamakee County and one in Fremont County near Forney's Lake. A new nest was also found in Clayton County along the Mississippi River, and a nest in a huge cottonwood tree was reported by towboat captain, Pat Flippo, for Des Moines County near the mouth of the Skunk River.

As part of the USF&WS regional plan for bald eagle recovery, in 1981 Iowa established a goal of 10 active Bald Eagle nests by the year 2000 (Grier 1988). This goal was surpassed in 1991 when the number of active nests jumped to 13. Nest numbers climbed to 21 in 1992, to 43 in 1995, and to 84 in 1998 - the last year in which most Iowa nests were monitored closely. At that time, bald eagles had nested in 42 different counties.

The number of eagle pairs continued to grow, and by 2004, eagles had been reported nesting in 66 counties. Adams, Henry, Poweshiek, and Ringgold counties were the 2004 additions. During 2005, five more counties (Polk, Marshall, Story, Montgomery, and Kossuth) reported eagle nesting for the first time, bringing Iowa's eagle nesting county total to 71. Similarly, during 2006, six additional counties (Dickinson, Franklin, Boone, O'Brien, Wapello, and Page) reported eagle nesting, and five new counties (Hancock, Harrison, Cedar, Greene, and Lee) reported eagle nests in 2007. In 2008, eagle nesting was confirmed in Davis and Pottawattamie counties, and in 2009, Cerro Gordo and Emmet counties reported their first eagle nesting. Bald eagle nests were reported for Clarke and Winnebago counties in 2010 and for Grundy, Wright, and Pocohontas counties in 2011. During 2012, an active nest was confirmed for Audubon County, and during 2013 confirmed nesting was documented in Madison, Crawford, and Shelby counties. There are now ninety-five counties with documented eagle nesting (Figure 15.1), and approximately 614 bald eagle territories have been reported to the Iowa DNR since 1977.

In 2012, reports were received for 307 territories, with 48 reported for the first time. Roughly 72% (222) of the territories were reported active in 2012, and 21% (65) were reported inactive. The remaining 20 territories were reported with unknown activity. Forty-seven percent (n=104) of the active territories reported in 2012 included data on the outcome of the nesting season. Fifteen (14%) of the 104 nests ended up failing, and 89 (86%) were successful in producing young. For the 98 territories for which we have a good count of fledglings, a total of 151 young were produced, which averages to 1.54 young produced per nest. If we extrapolate, assuming 86% of all nests reported as active are successful; this produces an estimate of 294 young fledged from Iowa nests in 2012. Projected eagle nest numbers (based on number of new nests reported each year and average nest increase rate since 1995) is shown in Figure 15.2 for 1999-2012.

The opportunistically reported data is important because it is the primary source of new nest reports and does provide a valuable yearly snapshot. However, the full dataset, including the opportunistic reports, may not be representative of the nesting population as a whole and is misleading when examining trends across years. The sentinel territory monitoring put into place in 2010 compensates for some of these full dataset weaknesses.

Sentinel Territory Monitoring Data

For 2012, the sample size of sentinel territories was 136. Monitors were found for 95 of these territories and data was received on 77 (81%) of these territories. This represents 23% of the known active

territories (objective is to get data on 25%). Within the 77 territories, 61 were active (79%), 13 were inactive (17%), and 3 could not be found or had unknown activity. The outcome of the 61 active nests broke down as follows: 45 successful, 3 failed and 13 unknown. Seventy-one young were produced by the active nests: 3 nests fledged no young, 8 nests fledged 1 young, 27 nests fledged 2 young, and 3 nests fledged 3 young. The estimated number of young produced per nest was 1.48.

Midwinter Bald Eagle Survey: Beginning in 1983, ICC staff cooperated on a national Midwinter Bald Eagle Survey to assess the health of the greater bald eagle population. In cooperation with the National survey coordinator, USGS Raptor Research and Technical Assistance Center in Boise, Idaho, IA DNR Wildlife Diversity Staff continue to coordinate this survey today. Data from this survey indicate a dramatic increase in Iowa winter bald eagle numbers since 1993 (Figure 15.3). An especially high count (2,493) during the winter of 2001 was related to harsh weather conditions and the subsequent concentration of eagles in count areas of the Mississippi River. Very mild winter conditions during surveys conducted in 2002 and 2003 were reflected in lower count numbers, which were still higher than any year prior to 2001. Cold winter weather again forced eagles south into Iowa during the next winter, and the 2004 survey results documented 4,432 bald eagles along Iowa's rivers; particularly along the Mississippi River. Milder weather conditions during the January, 2005 survey resulted in eagles being more spread out, and a reduced total (from 2004 count) of 3,164 bald eagles was tallied. The mild winter weather trend continued for the January, 2006 survey, and only 2,592 bald eagles were counted within the state. Similar mild conditions occurred for the 2007 count, with 2,431 bald eagles tallied during January. In 2008, cold weather returned, and Iowa's January count found 3,913 bald eagles within Iowa borders. During the January 2009 survey, 2,534 eagles were counted, and 2,566 bald eagles were tallied during the January 2010 survey. A total of 3,674 Bald Eagles were counted in 2011, which is the highest number since 2008 (3,913).

The number of eagles counted in the 2012 Midwinter Survey was roughly the same as numbers from 2011. In 2012, a total of 3,232 Bald Eagles were counted; that total remained higher than the previous 10 year average of 2991. Iowa wintering eagle numbers were down again in 2013, when 2,759 bald eagles were tallied. In spite of decreased numbers of eagles counted during 2009, 2010, and 2013 surveys (perhaps partly due to variable weather conditions during surveys and large fluctuations in food resource availability), the overall population trend is upward. It is likely that the severe drought conditions, prevalent in late 2012, did affect the count, since low water conditions existed in most waterways in January 2013. As usual, the majority of eagles counted were associated with the Mississippi and Des Moines rivers. Although the Mississippi River has been the traditional wintering stronghold for eagles, the Des Moines River held a substantially higher number of wintering birds during the previous three winters.

DISCUSSION

Both nesting and winter survey data were used for evaluating the delisting of bald eagles in the United States. Such information was used to upgrade the bald eagle national status from Endangered to Threatened in 1995, and in August 2007, the bald eagle was removed from the Federal Endangered/Threatened Species list. Iowa upgraded bald eagle from Endangered to Special Concern status in 2009.

Undoubtedly there are several reasons why nesting Bald Eagles have staged a comeback in Iowa. One reason for the recovery may be related to this species' ability to pioneer into suitable nesting habitat. This was not only true of Iowa's first nest in seven decades, which appeared in Allamakee County, but it also became obvious in 1987 when a pair of eagles nested in Jefferson County along the Skunk River. It was further evidenced in 1988 when an eagle pair nested in extreme southwestern Iowa in Fremont County near the Missouri River. Another key element helping eagle recovery appears to be Iowa's close proximity to one of the more stable nesting populations of bald eagles in the continental United States. Three states to the north, including Minnesota, Wisconsin, and Michigan, presently have a combined total of approximately one-third of all nesting eagles in the lower 48 states. There is little doubt that Iowa's eagle population has benefitted from its neighbor states to the north. In 1998, when eagle nests occurred in 42 counties, over half of all Iowa's eagle nests could be found in four counties in the northeastern corner of the state. That phenomenon appears to hold true today, even though there are now about seven times the number of nesting eagles in the state.

An unanticipated factor that has helped bald eagle numbers recover is the species' adaptability. It appears that eagles nesting in the Mississippi River floodplain may be somewhat tolerant of boat traffic (McKay et al. 1995). Other instances indicate that some eagles are more tolerant of disturbance than others. There are now numerous nests located within several hundred yards of buildings, roads, and farm fields. One nest along the Upper Iowa River in Howard County was only about 100 yards from the bedroom window of very interested eagle nest watchers. The nest was located on the opposite side of the river, which probably minimized the impact of human activity. Grier (1988) explained that eagles' ability to tolerate human activity and nest close to buildings has . . . "broadened their amount of available habitat and living space."

THE FUTURE

Although the outlook for Iowa's eagle population is favorable, there are still factors that affect eagle numbers. Unmanaged logging can pose a threat to eagles, and the removal of large, mature cottonwoods along Iowa streams limit where eagles can nest and find foraging perches. Logging in the vicinity of eagle nests also can affect the nesting outcome, especially if done during the nesting season. Even though there are strict federal laws protecting eagle roost and nest sites against disturbance during their occupancy, cutting of roost trees of

bald eagles during the time of year that eagles are not using them is not prohibited.

Lead poisoning is still a concern, as a number of eagles are found in Iowa each year, either dead or suffering from this problem. Five out of eight bald eagles found sick in Iowa and brought to wildlife rehabilitators between November 1998 and January 1999 suffered from lead poisoning. Iowa's Wildlife Rehabilitators report that of the bald eagles received by rehabilitators and tested for presence of lead since January 2004, approximately 50% show elevated levels of lead. Since 1996, an average of 25% of the bald eagles admitted each year to The Raptor Center at the University of Minnesota have toxic levels of lead in their blood. Where the majority of this lead is coming from is yet to be determined. For the last two years, an Iowa State University graduate student has been collecting eagle droppings at eagle nest and roost sites to determine if lead is present in breeding and wintering eagles. In the meantime, Iowa's eagle nest monitoring efforts indicate its population is still increasing.

Despite current problems that face the bald eagle, its numbers continue to recover. In 1963, an Audubon Society survey found only 417 remaining bald eagle nests in the continental United States. It was a species headed for extinction. In 2006, the U.S.F&WS estimated about 9,500 active nests in the lower 48 states. Iowa, which had no nests for over 70 years, in 2012 had approximately 300 active nests. The enforcement of protective laws and a change in the public's attitude toward eagles have helped bring back this species.

Bald Eagle Appreciation Days: Iowa DNR staff have been involved with promoting the appreciation of bald eagles since helping establish the first event in Keokuk in 1985. There are presently at least 13 Bald Eagle Appreciation Days held in Iowa each winter to celebrate the existence of eagles, and between 35,000 and 45,000 people gather at these events annually. With the continuation of public support for bald eagle recovery, this bird's population should continue to increase.

ACKNOWLEDGMENTS

Stephanie Shepherd, a DNR Wildlife Diversity Program Biologist, coordinates the effort to monitor both Iowa's nesting and wintering Bald Eagles and provided the data for this report. Our thanks to the many Iowans who continue to monitor our eagle nests, continue to help with winter eagle surveys, and provide information that better helps the different agencies protect and manage for this species.

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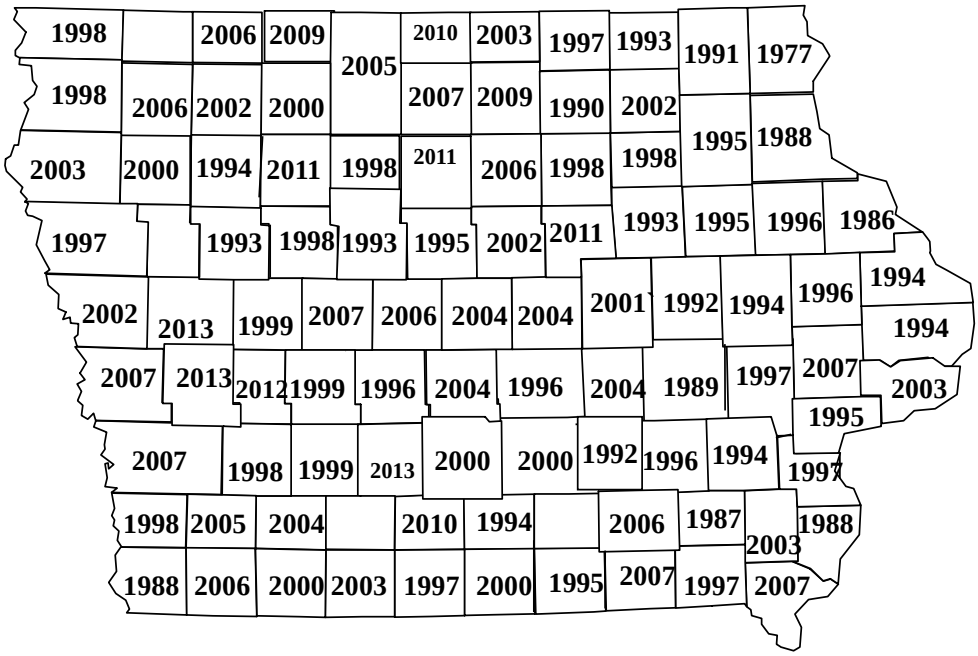

Figure 15.1. First year in which a bald eagle nest was reported for 95 counties, 1977 through 2013.

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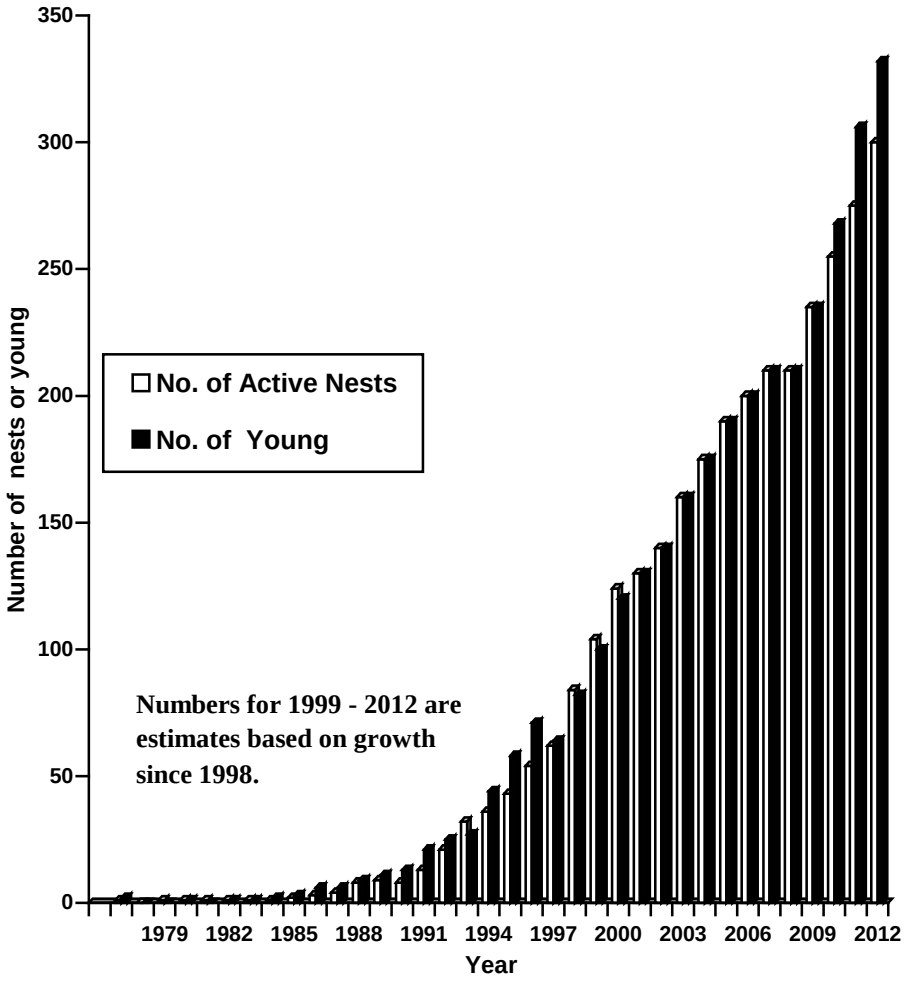


Figure 15.2. Number of Bald Eagle active nests and young produced in Iowa, 1977 through 2012.

Figure 15.3

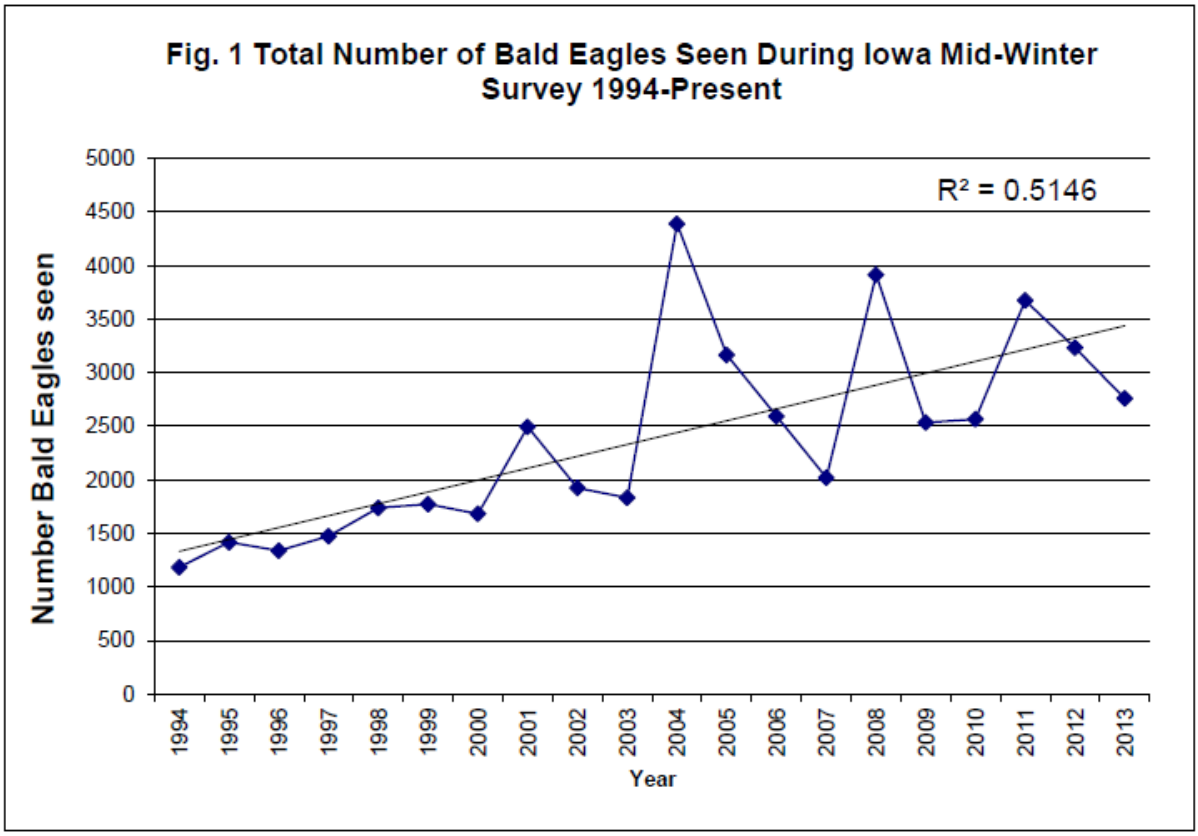


Fig. 1 Total Number of Bald Eagles Seen During Iowa Mid-Winter Survey 1994-Present
Number Bald Eagles seen
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
R² = 0.5146
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
Year

MOUNTAIN LION/COUGAR STATUS IN IOWA
1995 – 2012

The mountain lion/cougar (or puma, panther, and various other names) is the largest of the three wildcats historically documented in Iowa. The lynx and the bobcat are the other two. The mountain lion/cougar probably occurred throughout most of the state originally, but nowhere in great numbers. The lynx has been extirpated and the bobcat is currently increasing in numbers. The last historical record of a mountain lion/cougar in Iowa was one that was shot in 1867 in Appanoose County near Cincinnati, Iowa.

Since the mid-1990's, the DNR has received several reports of large "cat" like sightings which led some to believe that a few "free ranging" mountain lions/cougars may again be occurring in some portions the state. These "free ranging" mountain lions/cougars could be either escapees, or released animals, privately owned, (grandfathered in before July 1, 2007 legislation to curtail the ownership of certain "dangerous wild animals") or animals dispersing from western and southwestern states. **THE IOWA DNR HAS NOT 'STOCKED' OR INTRODUCED MOUNTAIN LIONS INTO THE STATE NOR IS THERE ANY CONSIDERATION OF DOING SO.** Southeast South Dakota, eastern Nebraska, northeast Kansas, Missouri, as well Minnesota, Wisconsin, and Illinois, have reported increased mountain lion/cougar sightings during the past 10 years.

Confirmed Mountain Lions in Iowa

Figure 1 is a map showing mountain lion sightings reported to the DNR that were confirmed or highly probable confirmations (1995 – 2012). Tracks and/or sightings reported to us throughout the year are documented as confirmed or unconfirmed. This past year (2012), the Iowa DNR confirmed one mountain lion report (Table 1). This cat was shot in the city of Des Moines in early October 2012 by the Des Moines Police Department because of concerns for public safety. Table 2 shows the number of confirmed mountain lions in Iowa by year. The following methods have been used to confirm the presence of mountain lions in Iowa to date: roadkills, shot and killed, verified camera pictures, and sightings (Table 3).

It is important to note that an average of 2 to 4 sightings per week is reported to us in the Clear Lake office from points all over the state. This does not count all of the reports other DNR staff receive in their regions throughout the state as well. Over 2,000 mountain lion sightings have been reported since 2010. However, strong evidence in the form of legitimate tracks, photos, video or other evidence is necessary before we can officially place them on our map as "confirmed". Although the DNR does not advocate indiscriminate killing of mountain lions, another road-kill, shooting, or a clear photo or video would help add credibility and confidence to all the mountain lion sightings that we are currently receiving.

It is very likely that we have the occasional mountain lion wandering through or staying in our state for a period of time, however we have not documented a self-sustaining breeding population of mountain lions in Iowa at this time.

With the methods of deer hunting that take place in Iowa, one would expect to

get more reports of mountain lions during that time. Overall however, the 150,000+ deer hunters seldom report a sighting of a mountain lion during their hunting activities. We actually receive more reports of mountain lion sightings during the summer when wildlife cover is at its maximum than we do in the winter when it is at its minimum. It is an interesting trend and not exactly sure why.

DNA testing is used to determine the origin of mountain lions that are killed in Iowa whenever possible. The origin of the 3 dead mountain lions has been completed and results indicate that they are of North American origin. Results from that testing showed strong indications that it matched DNA common to cats from the Black Hills region of South Dakota. There are some indications the only legal source of captive mountain lions/cougars should be of South American origin, although more study is necessary before that theory can be substantiated or discounted.

Currently the mountain lion has no legal status in the Iowa Code, thus they are not given any sort of protection by Iowa Law. The DNR requested that the 2002 legislative session consider legislation to designate the mountain lion and the black bear as furbearers, thus allowing the DNR to properly manage these species, should their numbers increase. The DNR also requested that indiscriminate killing of these animals not be allowed unless they are about to cause damage or injury to property or persons. The legislation did not pass. Afterward, the Governor's office asked the DNR to not pursue mountain lion/cougar and black bear furbearer status in the Iowa Code in 2006, 2007, and 2008.

Depredation: This past year, we had some cases of livestock depredation but none could be positively confirmed as mountain lion depredation. These reports came from the following counties: Humboldt, Kossuth, Emmet, Allamakee and Polk. Whenever possible, DNR staff made an effort to examine the evidence left at the scene before trying to say for sure what the predator might have been. Most depredation cases in Iowa are from canines (dogs or coyotes). It is possible for a mountain lion to attack/ depredate livestock, however again, we did not have any cases in Iowa in 2012 where we could determine for sure that a mountain lion caused livestock damage. We had 2 reports of horses with claw marks (scratches) on the hind flank, and 2 reports of dead calves that some property owners believe were taken by mountain lions. Solid evidence to validate these reports was difficult to ascertain. However, mountain lion researchers believe that white-tailed deer and other wild animals, especially mammals, are the preferred prey.

Even so, predators are generally opportunists and if hungry they will take what is readily available. We have had at least 5 reports (1 in Carroll, 1 in Harrison County, 1 in Polk County, 1 in Jones County, 1 in Calhoun County, and 1 in Pocahontas County) from people who believe that they have seen mountain lion cubs. A few additional reports of mountain lion cubs have been reported this past year. At this point most DNR personnel are skeptical of those reports because of a lack of evidence when the area was investigated. All mountain lions that have been killed in Iowa in recent years have all been reproductively immature 1 to 2 year old males. Credible mountain lion sightings and tracks are important to the Iowa

DNR. Two excellent websites to help with mountain track identification are http://www.bear-racker.com/cougar.html and http://www.geocities.com/Yosemite/9152/cougar.html. It is important to remember that all cat tracks are round in shape; with 4 toes and a heel pad that has 3 posterior lobes and a less than prominent M shape on the forepart of the heel pad (Figure 2). Adult mountain lion/cougar tracks are 4 inches or larger in diameter, whereas bobcat tracks are nearer to the 2 ½ to 3 inch range in diameter. All cats have retractable claws, thus the tracks they leave show no claw marks except in unusual circumstances. When possible, good plaster casts of suspected tracks will aid greatly in their identification. We will continue to monitor and map reliable sightings, but because there are still many mountain lion/cougar sightings that are reported with poor quality photos or video and so few tracks found, they are difficult to substantiate.

SAFETY ISSUES:

The good news is that lions generally avoid humans. People are more apt to be killed by a dog or struck by lightning than attacked by a mountain lion/cougar.

Some safety do's and don'ts can be found at the Mountain Lion Foundation website, www.mountainlion.org.
Also the Eastern Cougar Network is a great source of Mountain lion/cougar information. Their website is mdowling@courgarnet.org.

Here are some suggestions on what to do in the remote chance you have a mountain lion/cougar encounter:

(1) Spread your jacket, coat or shirt above you head attempt to look larger.
(2) Hold your ground, wave, shout and don't run, as running stimulates the predator reflex (just like dogs) to pursue anything that runs away.
(3) Maintain eye contact if you sight a lion. Lions prefer to attack from ambush and count on the element of surprise
(4) If small children are present, or if there are several people in your group, gather everyone very close together. Mountain lions are not predators of large groups.

In the past 110 years 66 people have been attacked by mountain lions/cougars, resulting in 61 injuries, 19 of which were fatal, and none occurred in Iowa. In 2010, the DNR published a 4 fold brochure on the Status of Mountain Lions/Cougars in Iowa for the State Fair. The brochure is available on the Iowa DNR website and we send it out whenever needed to interested individuals or the media.

Since the first modern reports of mountain lion/cougars sightings began to increase significantly in 2001, Ron Andrews (previous Iowa DNR Furbearer Biologist, now retired 2011) gave well over 250 public informational meetings statewide regarding the status of mountain lions/cougars in Iowa and the Midwest. This was done to educate the public about Mountain Lions and help with their concerns.

Table 1. Confirmed Mountain Lions in Iowa (1995 – 2012).

Month	Year	Confirmation Method	County
December	1995	Tracks	Lyon
April	2001	Roadkill (Captive Release)	Jasper
August	2001	Roadkill	Shelby
September	2001	Tracks	Allamakee
October	2001	Tracks	Cherokee
December	2001	Sighting/Tracks	Ringgold
October	2003	Sighting	Pottawattamie
November	2003	Shot	Sioux
January	2004	Shot	Wayne
February	2004	Tracks	Lucas
November	2004	Sighting	Woodbury
November	2004	Trail Camera Pictures	Marshall
December	2004	Sighting	Scott
December	2009	Shot	Iowa
September	2011	Trail Camera Pictures	Clinton
October	2012	Shot	Polk

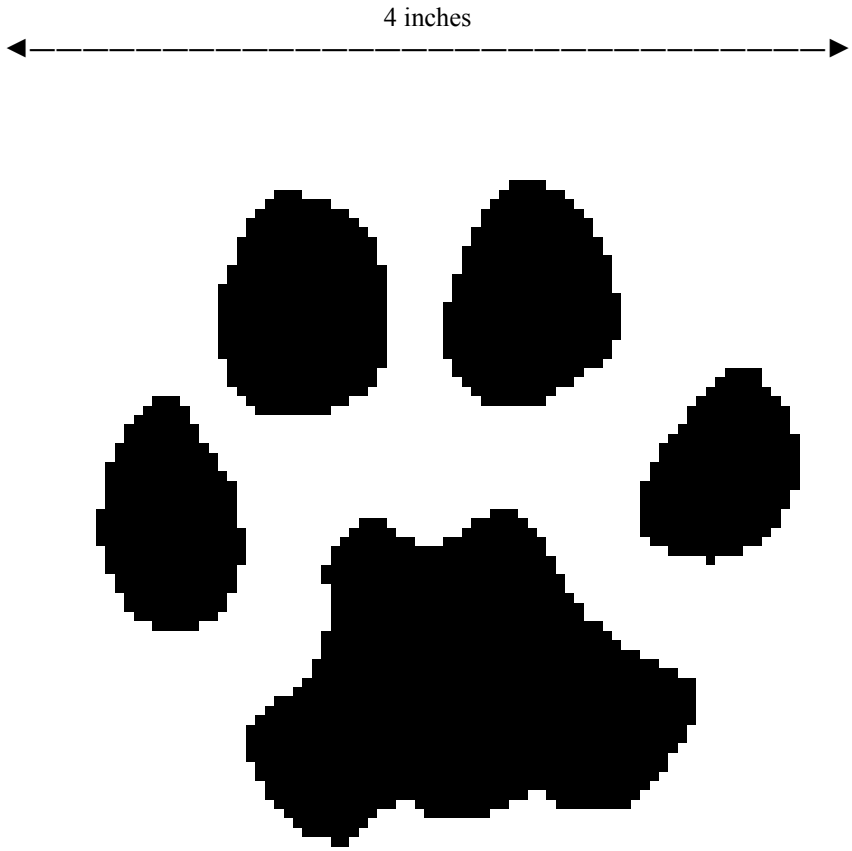
Table 2. Confirmed Mountain Lions in Iowa by year (1995 – 2012).

Year	No. of Confirmed Mountain Lions
1995	1
2001	5
2003	2
2004	5
2009	1
2011	1
2012	1
Total	**16**

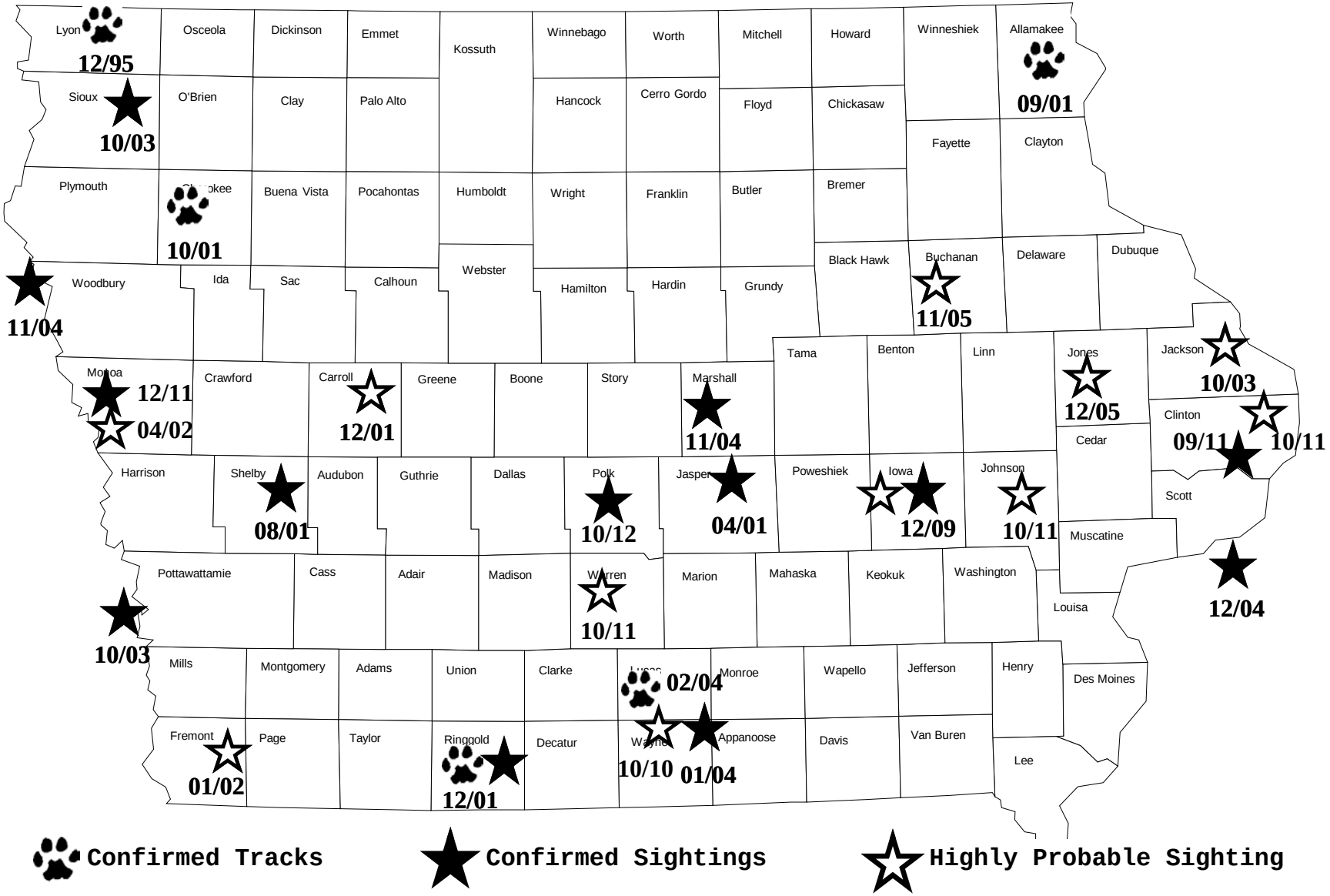
Table 3. Method of confirmation for Mountain Lions in Iowa (1995 – 2012).

Confirmation Method	No. of Mountain Lions
Sightings	4
Tracks	4
Pictures	2
Shot	4
Roadkills	2
Total	**16**

Figure 2. Typical Mountain Lion track.



Mountain Lion Reports 1995-2013



Numerous additional sighting have been reported, but are not mapped because of less than credible information. 7-17-13

BLACK BEAR STATUS IN IOWA
2001 to Present

Black bears were one of the most recognizable and noticeable mammals encountered by Europeans as they settled North America. As settlers moved west, they generally killed any bears they encountered. Thus, black bear numbers declined rapidly in many areas and disappeared from much of their former range. Most present-day Iowans probably associate black bears with some of our large national parks and do not realize that they once occurred in Iowa. When the settlers reached Iowa, they found them widespread throughout the state but higher numbers occurred where there were more woodlands. Bears were killed because they would damage crops, harass and kill livestock, and because they were valuable both as food and for their hides. Several black bear stories of the exploits of early-day "Davy Crocketts" in Iowa have been recorded in journals and diaries.

There are pre-1900 records of black bears from 48 Iowa counties, two-thirds of them from counties in the eastern half of Iowa. The last recorded historical bear sighting in the 1800s was one killed near Spirit Lake in 1876. Although a Fish Commission had been established in 1873 nothing really happened in terms of Game/Wildlife legislation until after the last black bear had disappeared. Thus they are not recognized as a designated wildlife species in the Iowa Code. In the 1960s, black bear reports began to occur in the state. Several of these reports were from captive bears that were either turned loose or were escapees. In the 1990s through the present, we began to field more reports of what appeared to be wild free ranging black bears in the state. Currently, the nearest established wild populations of black bears are in Wisconsin, Minnesota, and southern Missouri. These populations are expanding their range towards Iowa from both the north and south. Figure 1 shows the most recent sightings of bears in Iowa. During 2002, there were at least 5 different fairly reliable black bear sightings. In 2003 and 2004, no reliable sightings have been reported. However during the spring and summer of 2005, the Iowa DNR received its first modern day black bear depredation complaint. In Allamakee County, a black bear reportedly was marauding several beehives in a few scattered locations foraging on both the bees and the honey. In 2008, a surge of 5 black bear sightings occurred, 1 in each of the following counties: Davis, Johnson, Winneshiek, as well as one shot in both Franklin and Fremont counties a week apart. Although not validated, the circumstantial evidence seems to indicate the one shot in Franklin County may have been and escaped or released bear while the one in Fremont County appears to be wild as it had been seen in Missouri, just days before it was killed just across the border from where it was last seen in Missouri.

In July (2009), a male black bear entered the northeast part of the state and paralled the eastern Iowa border south before crossing the Mississippi returning to Wisconsin. This bear crossed the Mississippi River near Harpers Ferry in Allamakee County moved westward then south and basically paralleled the river southward to near Clinton. Then it crossed the Mississippi River near Green

Island, Iowa back into Wisconsin then northward to Baraboo, Wisconsin where it became impossible to keep track of it because it had no specific markings.

During May of 2010, there was a reliable report of an adult black bear and a yearling spotted just west of Marquette, IA (Clayton County) feeding at bird feeders. In late May, 2010, a smaller bear, probably a yearling, was witnessed in northwest Mitchell County near Carpenter, IA. In early June, a bear was seen north of Northwood (Worth County) near the Iowa/Minnesota border. Observations of this bear have also reported in southern Minnesota. It would seem unlikely that this bear was the same one reported near Marquette as it was not reported at any point between and in Iowa that would be unusual as there is so much open territory to see the bear. All indications are that these are wild, free ranging bears, not bears released or escaped from captivity.

In October 2010 a black bear was sighted in and around the Yellow River Forest in Allamakee County. This prompted the Iowa Department of Natural Resources to issue a warning for people to avoid the animal at that time. This bear is likely a young male that moved into Iowa from southern Wisconsin where there is a healthy wild bear population.

In September 2011, a black bear was sighted in Winneshiek County. Again, this is likely to be a wandering bear from southeast Minnesota or southwest Wisconsin. A few unconfirmed reports came from Mitchell County along the upper Cedar River as well.

In May through June 2012, a black bear was sighted multiple times in northeast Iowa. From field reports, it seemed to make a loop through the following counties: Winneshiek, Fayette, Chickasaw, Mitchell, Howard, and back to Winneshiek where it was last seen moving in a northerly direction. No further confirmed reports came to us after that possibly indicating it moved back into southeast Minnesota. Further reports of black bear sightings occurred there through the summer 2012.

Black bear sightings are usually more reliable than mountain lion/cougar sightings because they do not necessarily flee when sighted, also bear tracks are very distinct, and they are not readily mistaken for other animals. Black bears, like mountain lions/cougars, have no legal status in Iowa. The DNR continues to consider legislation to give both species legal furbearer status in the Iowa Code. The Governor's office has discouraged the DNR from pursuing legal status of the black bear and mountain lion/cougar because of bio-political conflicts between agriculture and these 2 wildlife species.

Proposed legislation was introduced for designation status for the black bear, but it did not get debated during the 2006 and 2007 legislative sessions. However the public outcry over the 2 black bears shot in mid 2008 point out that much of the public is in favor of some type of legal black bear status. The effort to give them furbearer status needs to be pursued in the future. This would allow appropriate wildlife management to occur which would include opportunities to handle nuisance black bear complaints.

Regardless of legislation, development of a more uniform and standard policy concerning bear sightings in Iowa may

be warranted. A lot of emotion is generated when one of these bears are killed. Where possible we should discourage the indiscriminant killing of black bears unless there are concerns for human, pets, or livestock safety. Bears are omnivores, primarily vegetarians, foraging on seeds, fruits, berries and other plant material but given the hunger and need they will feed upon animals as well. Human tolerance will be the deciding factor as to whether black bears could ever re-established again in Iowa. If they do, I am sure that their numbers would remain quite small.

Most historical information in this report is from Dr. James J. Dinsmore's book "A County So Full of Game—The Story of Wildlife in Iowa".

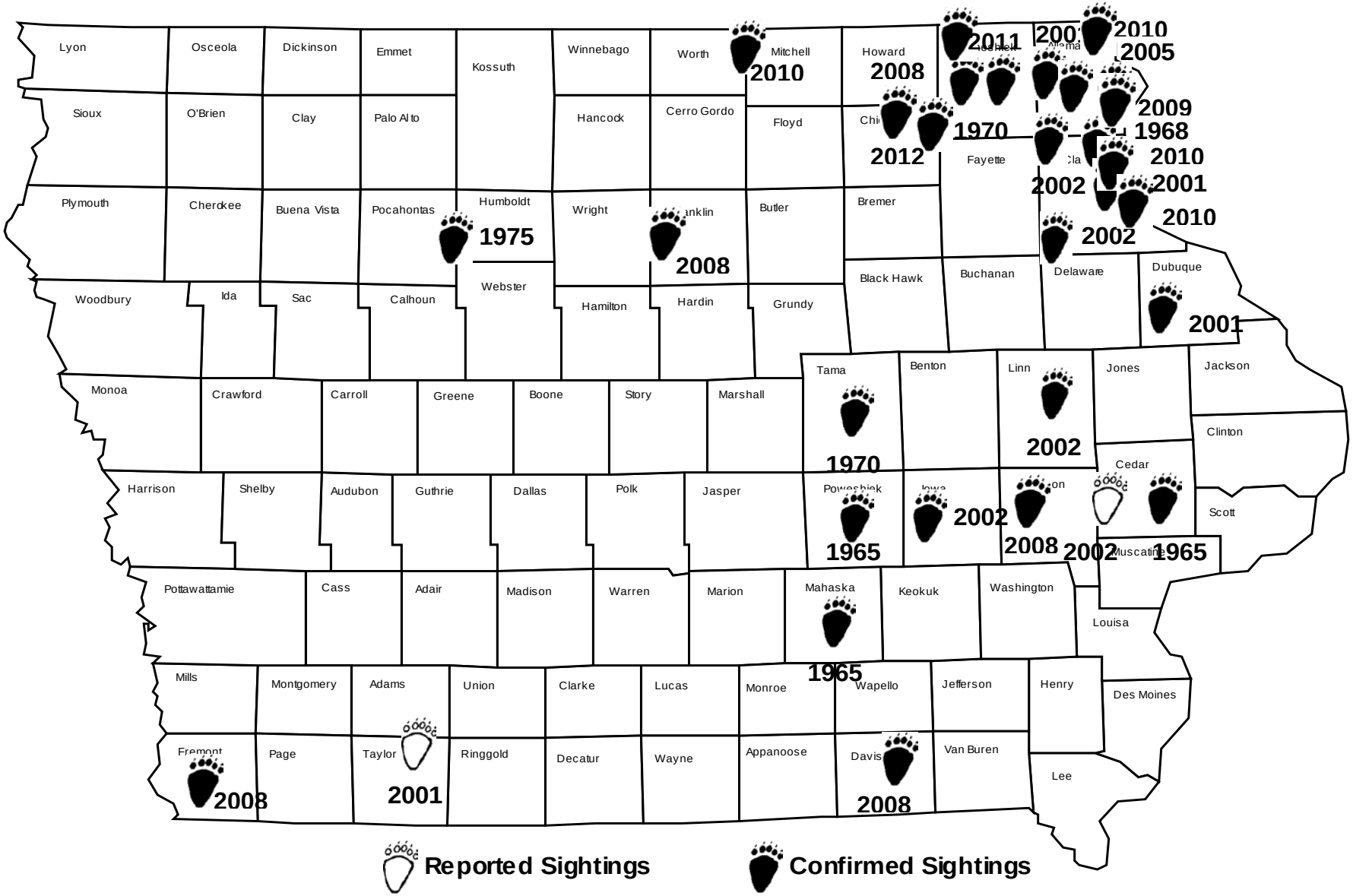


Figure 1. Black Bear Status In Iowa

(1876 Last Historical Sighting)

(Dickinson County)

9-10-12

GRAY WOLF (TIMBER WOLF) STATUS IN IOWA
2001 to Present

Two large wolf-like mammals were frequently encountered by early settlers in Iowa. While Iowa was still part of the Louisiana Territory, in the early 1800s the very first piece of wildlife legislation was that to encourage killing wolves. Much of the legislation centered around bounties. There are no known specimens preserved in museums from the state. Historians usually did not distinguish between the gray (timber) wolf, *Canis lupus* and the coyote, *Canis latrans* often called the "prairie wolf." Both species were greatly persecuted and until very recently, only the coyote remains and thrives in the state.

Two different subspecies of gray wolf occurred in Iowa. The Great Plains wolf (a name that causes considerable confusion because the coyote which was often given a similar name, (the prairie wolf) was found over the western two-thirds of the state. The Great Plains Wolf followed the bison herds, feeding on the stragglers from the herd as well as other prey (Dinsmore, 1994). The other subspecies was the gray (timber) wolf found primarily in eastern Iowa, especially in the wooded northeastern corner of the state. Gray wolves were likely extirpated by the late 1800s. Bowles (1971) regards the last valid wolf record to be from Butler County in the winter of 1884-85. A timber wolf taken in Shelby County in 1925 appeared to be wild, but it also could have escaped from captivity before being shot. Gray wolves often fed on the domestic animals that settlers brought to Iowa, and there are numerous reports of them killing chickens, pigs, calves, and sheep in Iowa. Gray wolves were fully protected in all the 48 states in August of 1974 under the Endangered Species Act (ESA) of 1973. In 1978, they were reclassified (down-listed) from endangered to threatened under the ESA in Minnesota. The US Department of Interior's Fish and Wildlife Service administers the ESA. The Fish and Wildlife Service is working to allow more state rights' management of gray wolves and other resident species. In 2007, the gray wolf was taken off the Threatened list in Minnesota. Litigation from interest groups ensued creating controversy on whether management control should be by the state or by the US FWS. Taking the gray wolf off the endangered/threatened list has continued to generate considerable controversy between wildlife professionals and animal rights' activists. Public review and input of this effort continues.

At this time, the MN DNR was allowed to move forward with their first modern day wolf harvest that took place this Fall/Winter (2012).

Unlike the Moutain Lion and the Black Bear, the gray (timber) wolf is designated as a furbearer with state protected status under the Iowa Code. Gray wolves likely have protection status because they were not clearly separated from the coyote in early bounty legislation, while Moutain Lions and Black Bear had basically been extirpated before any wildlife legislation occurred. Thus the wolf was officially listed as a furbearer while the other 2 species had already disappeared and thus no reason to include them in early legislation. In recent years Minnesota wolves have been edging southeastward along the Mississippi River towards Iowa. In the mid-1990s occasional, lone

wolves were appearing in the Winona, Minnesota region, approximately 75 miles from the Iowa border.

On November 15, 2002, a wolf was shot in Houston County, Minnesota which is adjacent to Allamakee County, Iowa; the northeastern most county of Iowa. Rodney Rovang, manager of the Effigy Mounds National Monument near Marquette, Iowa, indicates that he has observed occasional wolf tracks in and near Allamakee County over the past decade. Two known wolf-like animals were taken in 2010 in Sioux and Guthrie County.

In October of 2000, a radio collared wolf from Michigan was shot and killed near Kirksville, Missouri. This animal traveled over 600 miles (Straight line from where it was radio collared to where it was killed) and could have actually moved through a portion of Iowa before being killed in Missouri. Kirksville is located about 50 miles south of Bloomfield, IA. Wolves are very mobile animals and as they extend their range southward more will likely frequent Iowa.

The Rocky Mountain wolf population was delisted from threatened on July 18, 2008 which allowed them to be legally harvested with approved state management plans, however an injunction by animal rights activists has now placed them back on the Threatened List which in essence gives them protection again. This is subject final court action as to whether they remain threatened or are in fact, delisted again where ranchers could kill them as needed to protect their livestock.

THE GRAY (TIMBER WOLF WAS OFFICALLY DELISTED FROM ENDANGERED AND THREATENED ON MARCH 6, 2009. The back and forth between federal protection or delisting has continued since. However, many western states now allow wolves to be readily killed if there is concern for the welfare of livestock. Numerous animals have, in fact, been taken since this occurred.

Plans are underway to revise Iowa's Gray Wolf Management Plan as required under the removal of the gray wolf from the Threatened list. Now that the gray wolf has been removed from the Threatened list in Minnesota, we are planning to revise the plan to accommodate the newly designated status of the gray wolf in the Midwest. The revised version will serve as guide as to how the DNR should respond to wolf concerns as wolf numbers increase and human and wolf encounters occur. During 2009 through 2011 a few reports have come from people seeing what they believed were gray wolves in Iowa on a more frequent basis but we have not been able to validate their presence with any sort of solid evidence. No reported, confirmed, sightings occurred in 2011.

2012

There were no confirmed reports of wolves in Iowa for 2012. However, there were some reports that weren't able to be confirmed reported to the Iowa DNR. Missouri and Illinois both reported 2 – 4 documented wolves in their states. It is possible that we may have a roving wolf move into or through our state on rare occasion, but it's important to understand that we don't have a breeding population at this time.

The most recent (unconfirmed) report was in Jefferson County in July 2012. However, if the current trend continues, I think it is only a matter of time before a validated wild gray wolf is

killed in the state. Because gray wolves, at a distance can be readily mistaken for coyotes or in some cases dogs, many reports will likely be cases of mistaken identity.

APPENDICES

1. **2012 Bowhunter Observation Survey**
2. **Ruffed Grouse Observation Survey**

2012 Bowhunter Observation Survey
Iowa Department of Natural Resources

Chris S. Jennelle, Ph.D., Biometrician, Iowa DNR
William R. Clark, Ph.D., Professor, Iowa State University

The Iowa Department of Natural Resources (DNR) solicited responses from bow hunters for the annual Bowhunter Observation Survey from October 1 to November 30, 2012. This was the ninth year of the survey, which was designed jointly with William R. Clark, Professor at Iowa State University. The two primary objectives for this survey are to: 1) determine the value of bowhunter observation data as a supplement to other deer data collected by the DNR; and 2) develop a long-term database of selected furbearer data for monitoring and evaluating population trends. Bowhunters are a logical choice for observational-type surveys because the methods used while bowhunting deer are also ideal for viewing most wildlife species in their natural environment. In addition, bowhunters typically spend a large amount of time in bow stands: more than 40 hours/season is not uncommon. We believe avid bowhunters (defined as those purchasing a license three years in a row prior to the survey year) are the best hunters to select for participation in this survey because they not only hunt often, but they also have the most experience in selecting good stand locations, controlling or masking human scent, using camouflage, identifying animals correctly, and returning surveys.

Participants for the 2012 survey were selected either from a core list of avid bowhunters that indicated interest in the survey from 2010, or from a list of avid bowhunters who had purchased a license for each of the 3 years prior to 2012. Our goal was to select approximately 999 bowhunters in each of Iowa's 9 climate regions. Each climate region contains approximately 11 counties, and approximately 91 bowhunters were selected per county in an effort to evenly distribute observations in each region. Selection of participants consisted of a 3-step process. In each county, participants were first selected from a core group of avid bowhunters who had previously indicated an interest in participating in this survey. If fewer than 91 core group participants existed in a county, additional participants were randomly selected from a separate list of avid bowhunters who were not in the core group. Finally, if the number of "core group" and "randomly selected" participants in a county was less than 91, additional avid hunters were selected from other counties in the region to reach the regional goal of 999 participants. A total statewide sample of 8,991 bowhunters was selected for participation. Of surveys mailed, 141 were either returned due to USPS address issues or hunters indicated they did not hunt this year, making the final statewide sample 8850.

Responses were obtained from 1,883 bowhunters who recorded their observations during 27,740 hunting trips, yielding 95,425.6 hours of total observation time (3.44 ± 0.021 hours/trip; mean ± 95% CL). Bowhunters reported a median of 14 trips during the 61-day season. Regionally, the number of bow hunting trips (and hours hunted) ranged from 2,034 (6,338.5 hours) in northwest Iowa (Region 1) to 4,283 (14,760.5 hours) in east central Iowa (Region 6). The raw survey response rate was 21.3%.

Observations were standardized for each of the 12 species to reflect the number of observations per 1,000 hours hunted in each of the 9 regions. In addition, 95% confidence limits were calculated for each estimate. Precision among estimates for common species, such as deer, wild turkeys, and raccoons, was good: confidence limits were generally within ±15% of the estimate. However, for less common species, such as badgers, bobcats, gray fox, and otters, the uncertainty associated with the estimate was quite large and occasionally exceeded the estimated value.

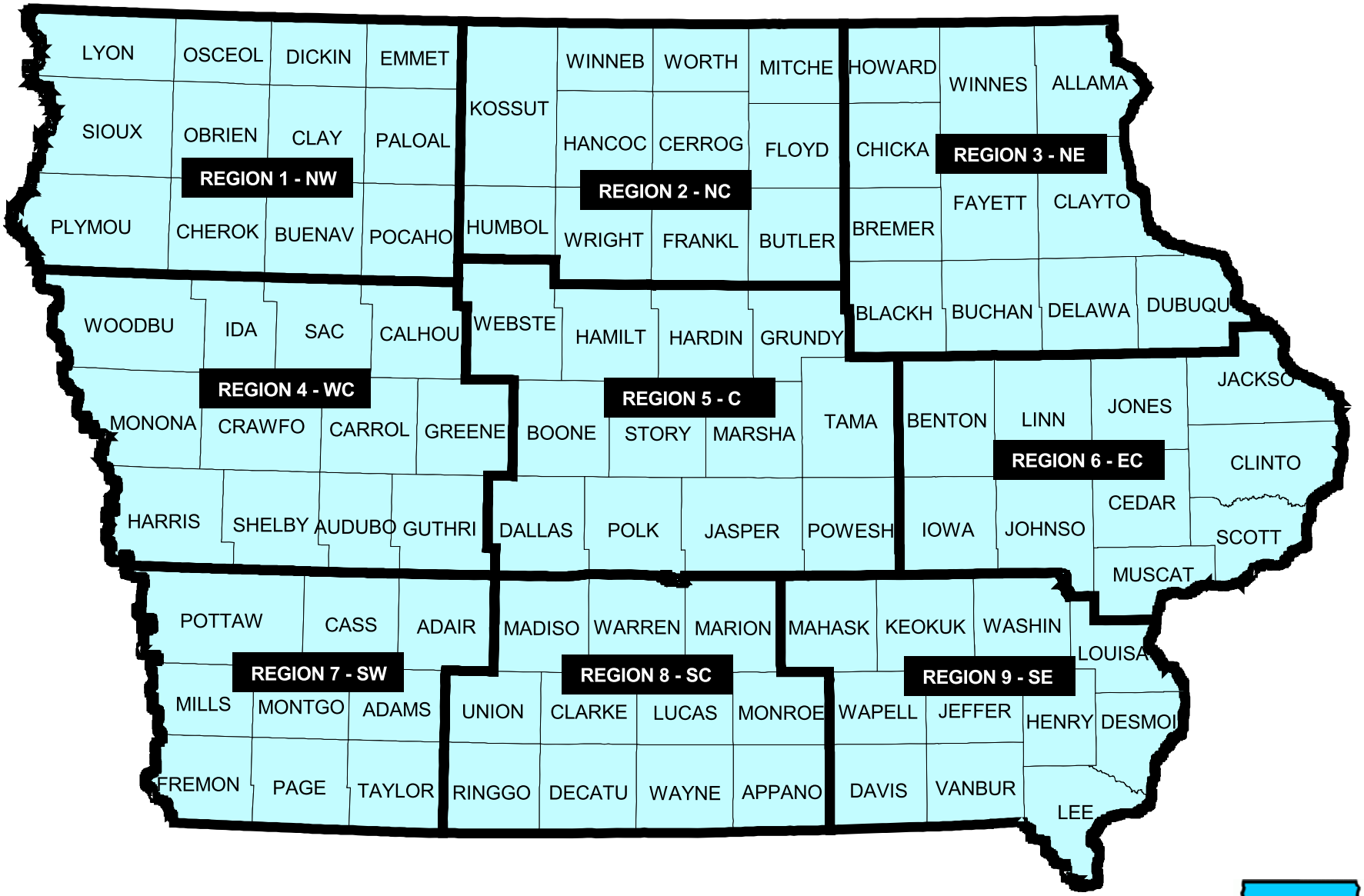
A comparison of results from 2011 and 2012 suggests that the number of total deer observed/1,000 hours increased significantly across the northern third of Iowa and in regions 5 and 6, while no significant declines were detected. Turkey observations increased significantly in regions 2 and 3 (and possibly in 6 and 8), while remaining consistent in the rest of Iowa. Bobcat observations/1,000 hours remain stationary, except for modest declines in regions 7 and 9 in the southern third of the state.

We at the DNR thank all hunters who participated in the 2012 Bowhunter Observation Survey. The volume of information provided by bowhunters could never be duplicated by the staff of biologists, technicians, and conservation officers in the Iowa DNR. Iowa's bowhunters are the best group of hunters to provide this observational information, and their participation in this survey plays a critical role in the conservation of these and other wildlife species for the future.

When looking at the following charts, we caution against making comparisons between regional estimates for any species. Any differences in observation rates between regions could be related to differences in many factors such as population size, habitat, topography, land use, or any other factor affecting the sightability of animals. For each of the selected species, any differences between regions are NOT entirely related to regional differences in population size.

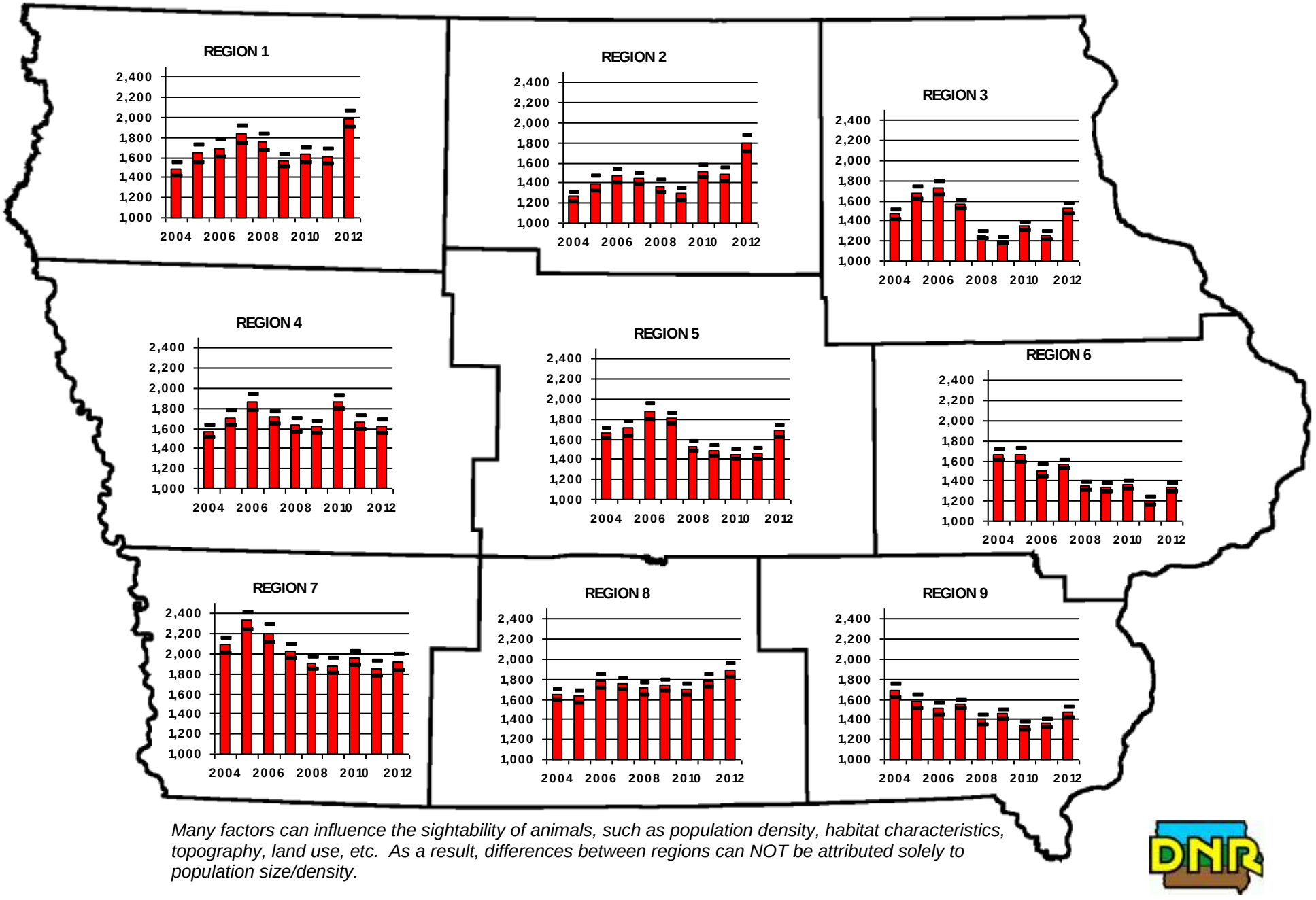
Bowhunter Observation Survey, Iowa Dept. of Natural Resources

Bowhunter Observation Regions



Total Deer Observations Per 1,000 Hours Hunted

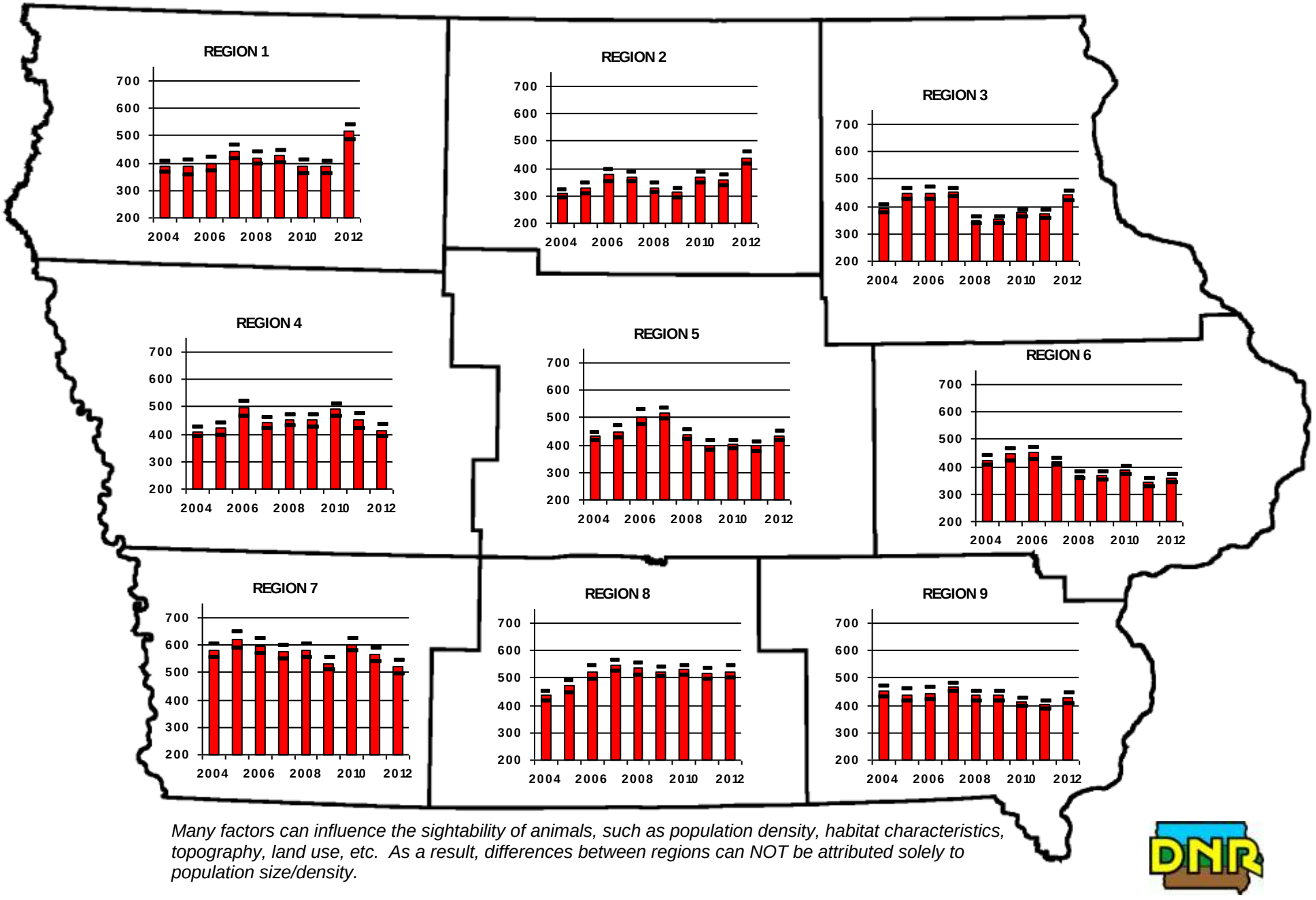
Bowhunter Observation Survey, Iowa Dept. of Natural Resources



Many factors can influence the sightability of animals, such as population density, habitat characteristics, topography, land use, etc. As a result, differences between regions can NOT be attributed solely to population size/density.

Antlered Deer Observations Per 1,000 Hours Hunted

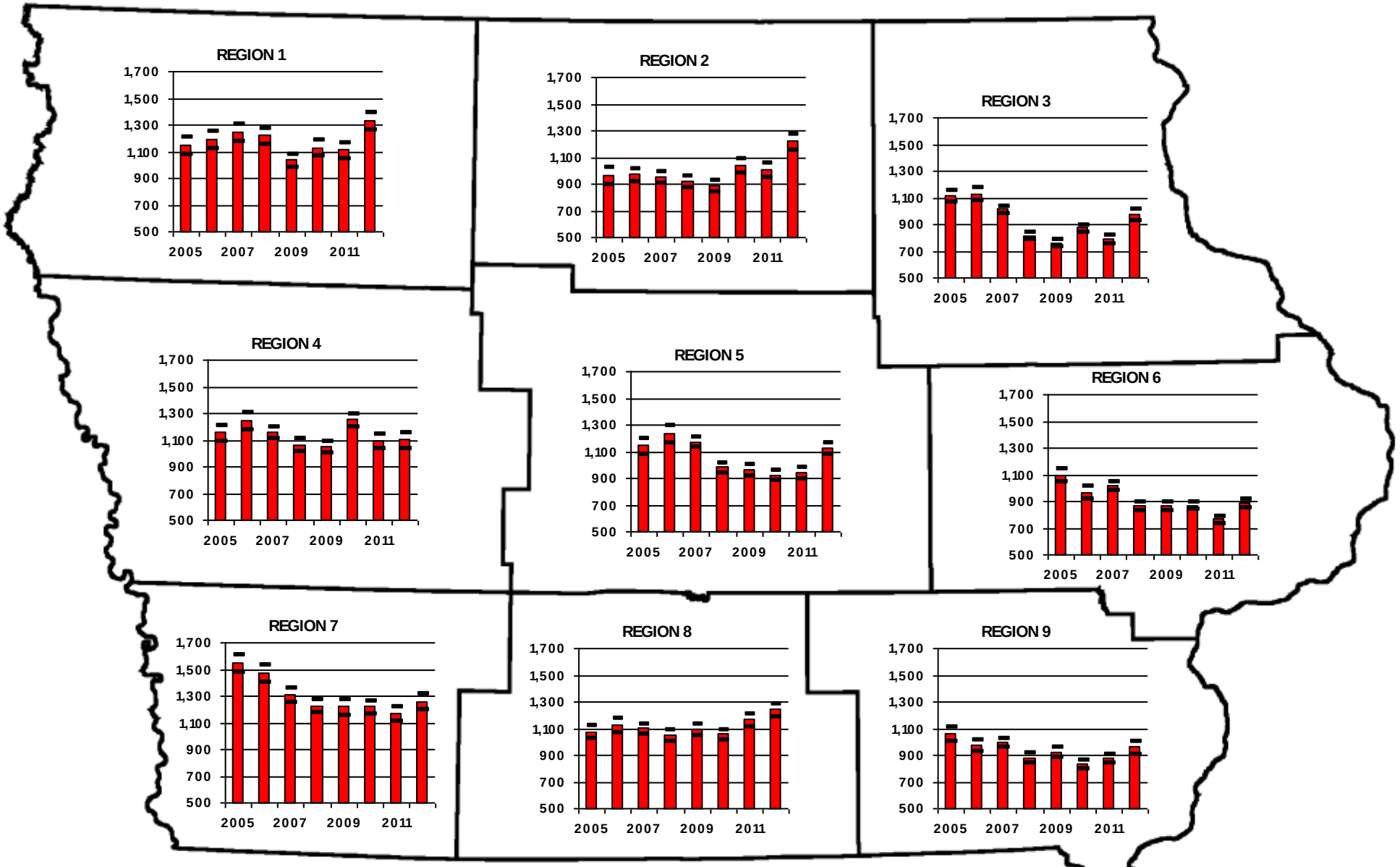
Bowhunter Observation Survey, Iowa Dept. of Natural Resources



Many factors can influence the sightability of animals, such as population density, habitat characteristics, topography, land use, etc. As a result, differences between regions can NOT be attributed solely to population size/density.

Antlerless Deer Observations Per 1,000 Hours Hunted

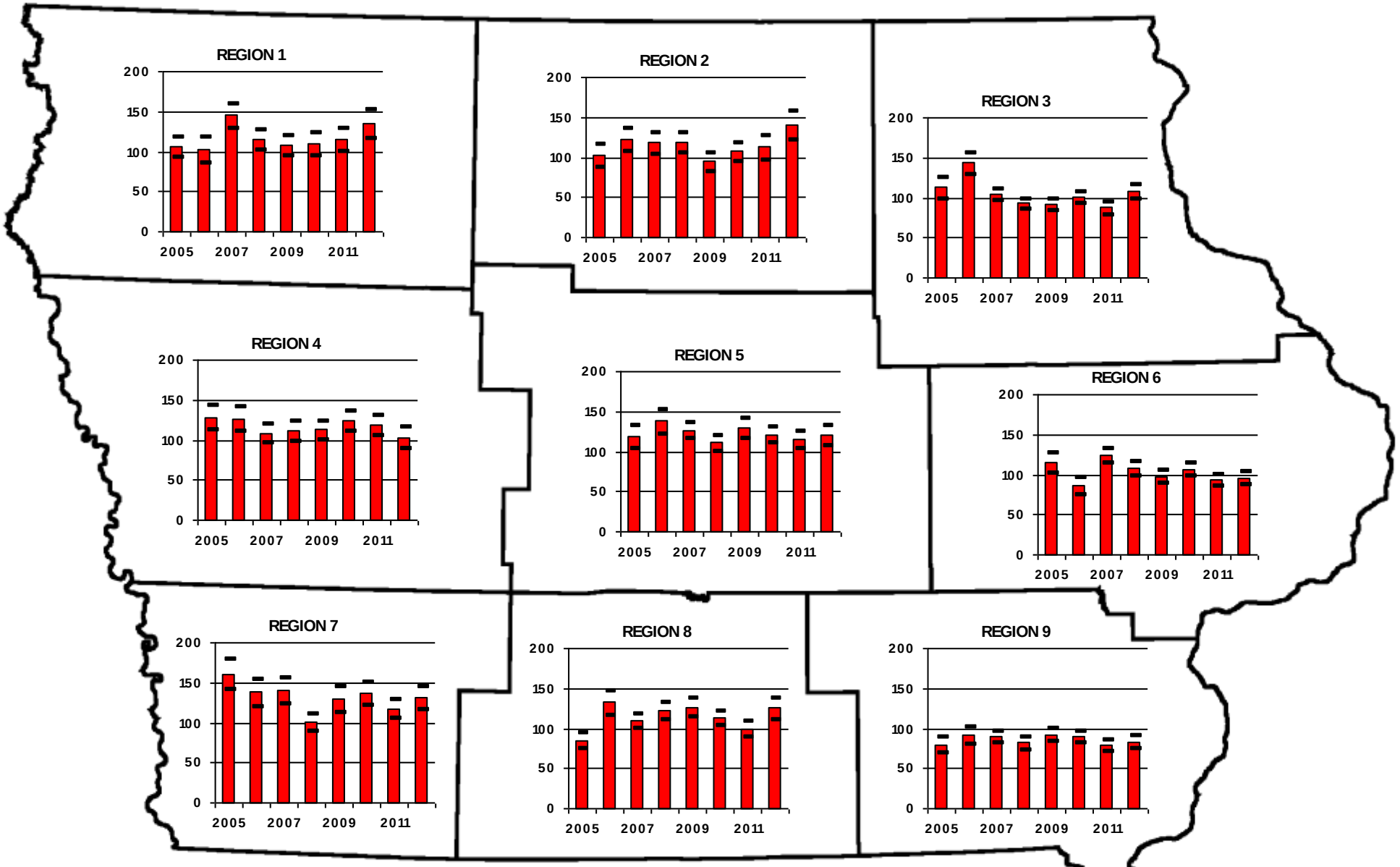
Bowhunter Observation Survey, Iowa Dept. of Natural Resources



Many factors can influence the sightability of animals, such as population density, habitat characteristics, topography, land use, etc. As a result, differences between regions can NOT be attributed solely to population size/density.

Unknown Deer Observations Per 1,000 Hours Hunted

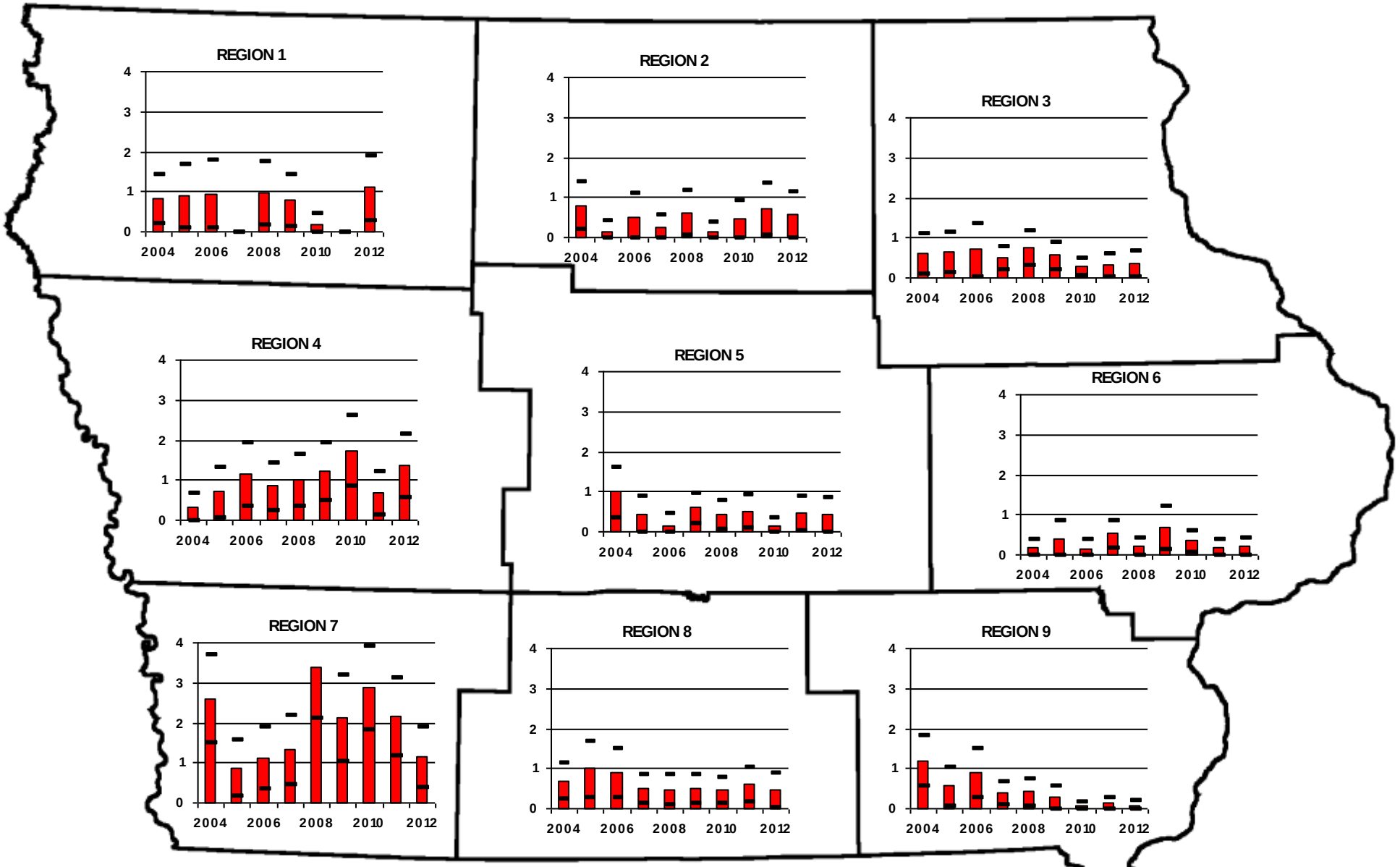
Bowhunter Observation Survey, Iowa Dept. of Natural Resources



Many factors can influence the sightability of animals, such as population density, habitat characteristics, topography, land use, etc. As a result, differences between regions can NOT be attributed solely to population size/density.

Badger Observations Per 1,000 Hours Hunted

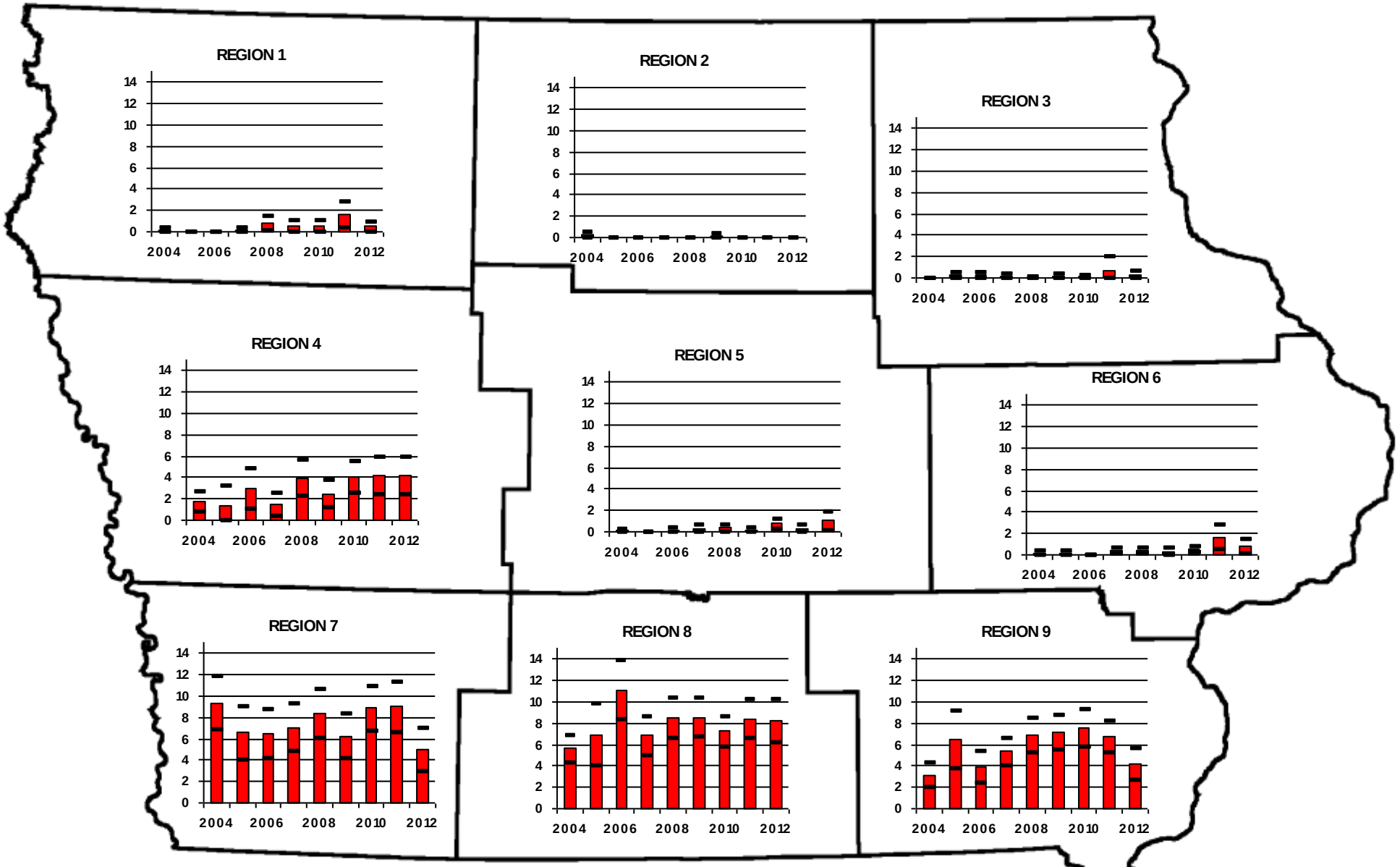
Bowhunter Observation Survey, Iowa Dept. of Natural Resources



Many factors can influence the sightability of animals, such as population density, habitat characteristics, topography, land use, etc. As a result, differences between regions can NOT be attributed solely to population size/density.

Bobcat Observations Per 1,000 Hours Hunted

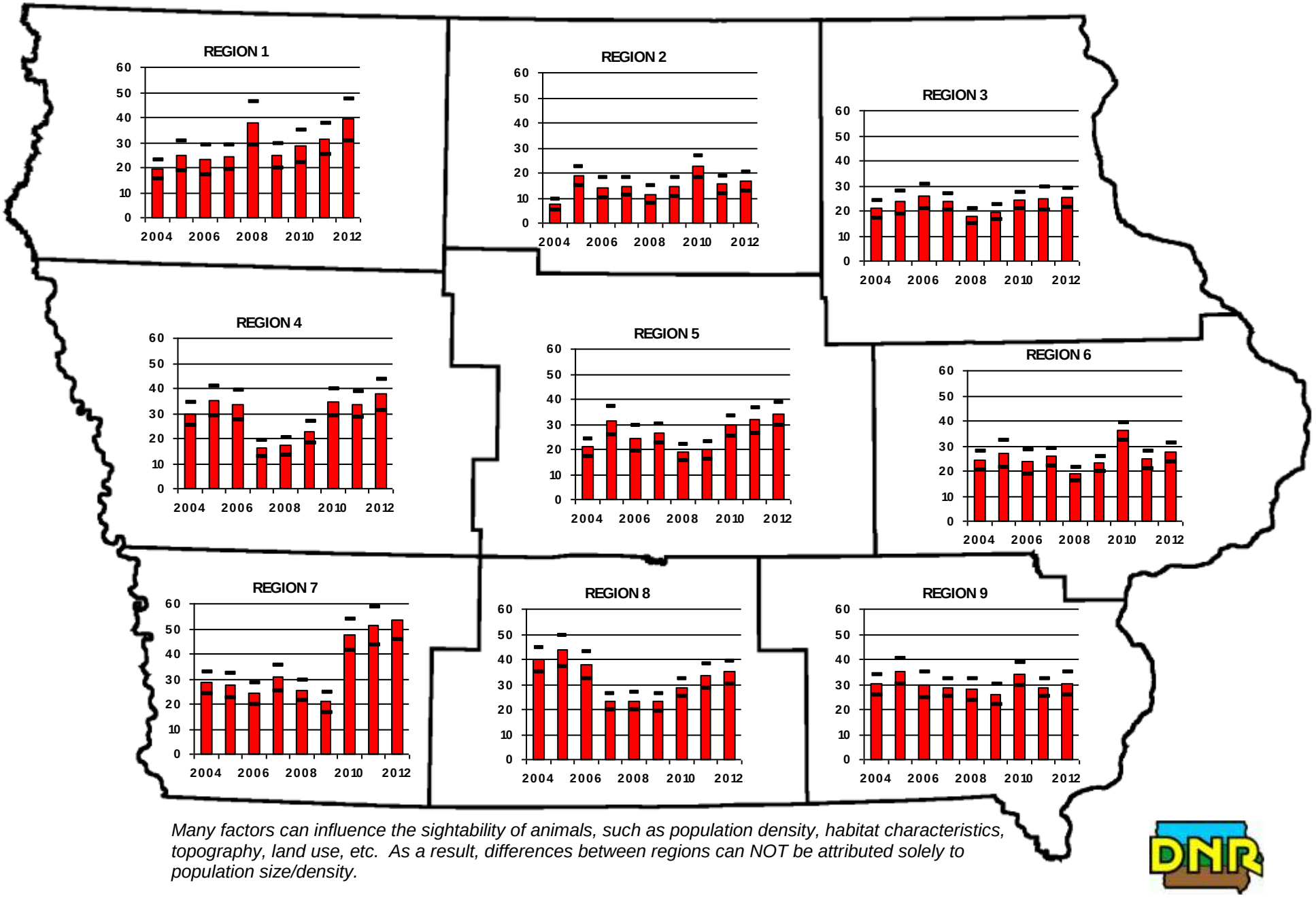
Bowhunter Observation Survey, Iowa Dept. of Natural Resources



Many factors can influence the sightability of animals, such as population density, habitat characteristics, topography, land use, etc. As a result, differences between regions can NOT be attributed solely to population size/density.

Coyote Observations Per 1,000 Hours Hunted

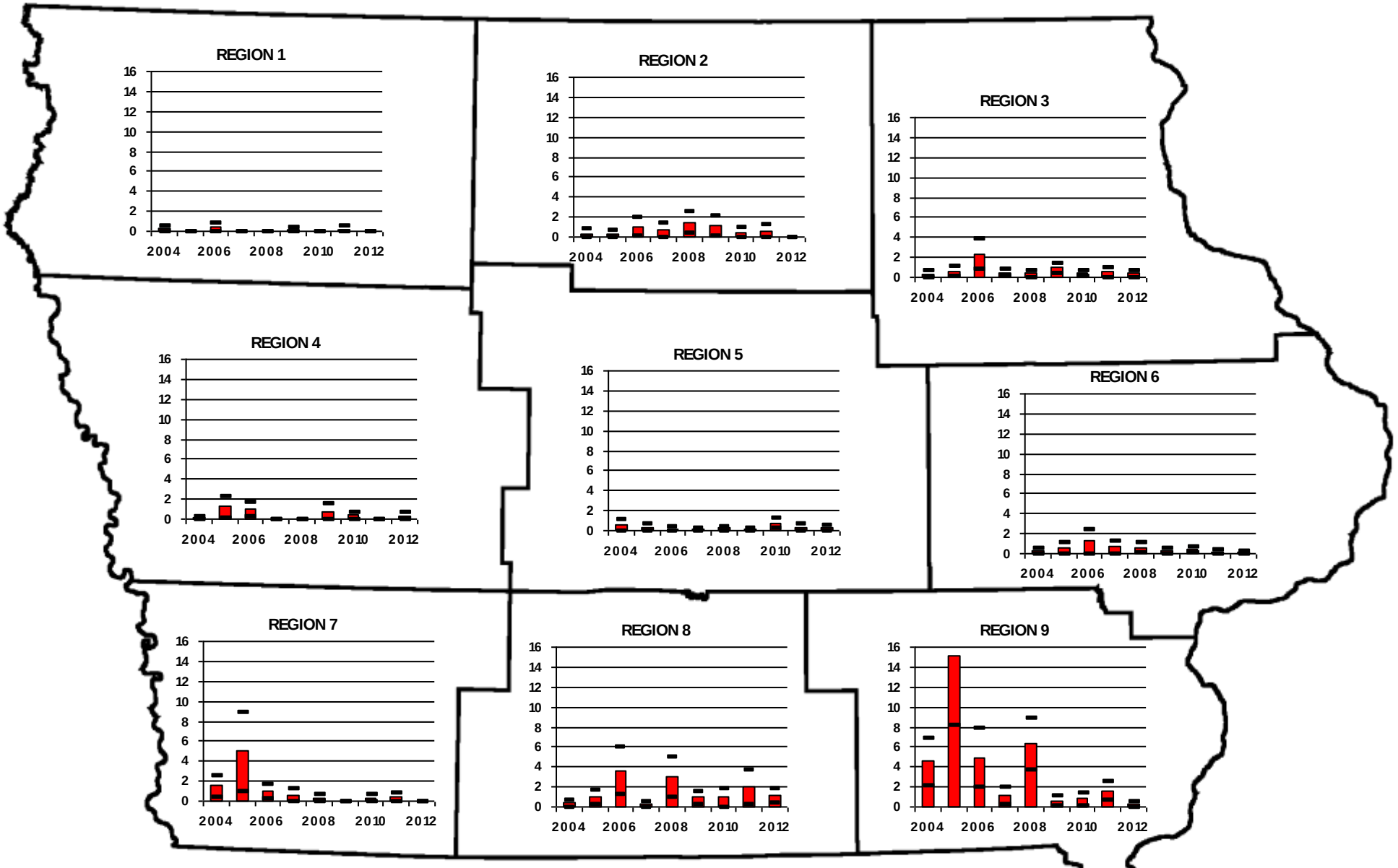
Bowhunter Observation Survey, Iowa Dept. of Natural Resources



Many factors can influence the sightability of animals, such as population density, habitat characteristics, topography, land use, etc. As a result, differences between regions can NOT be attributed solely to population size/density.

Gray Fox Observations Per 1,000 Hours Hunted

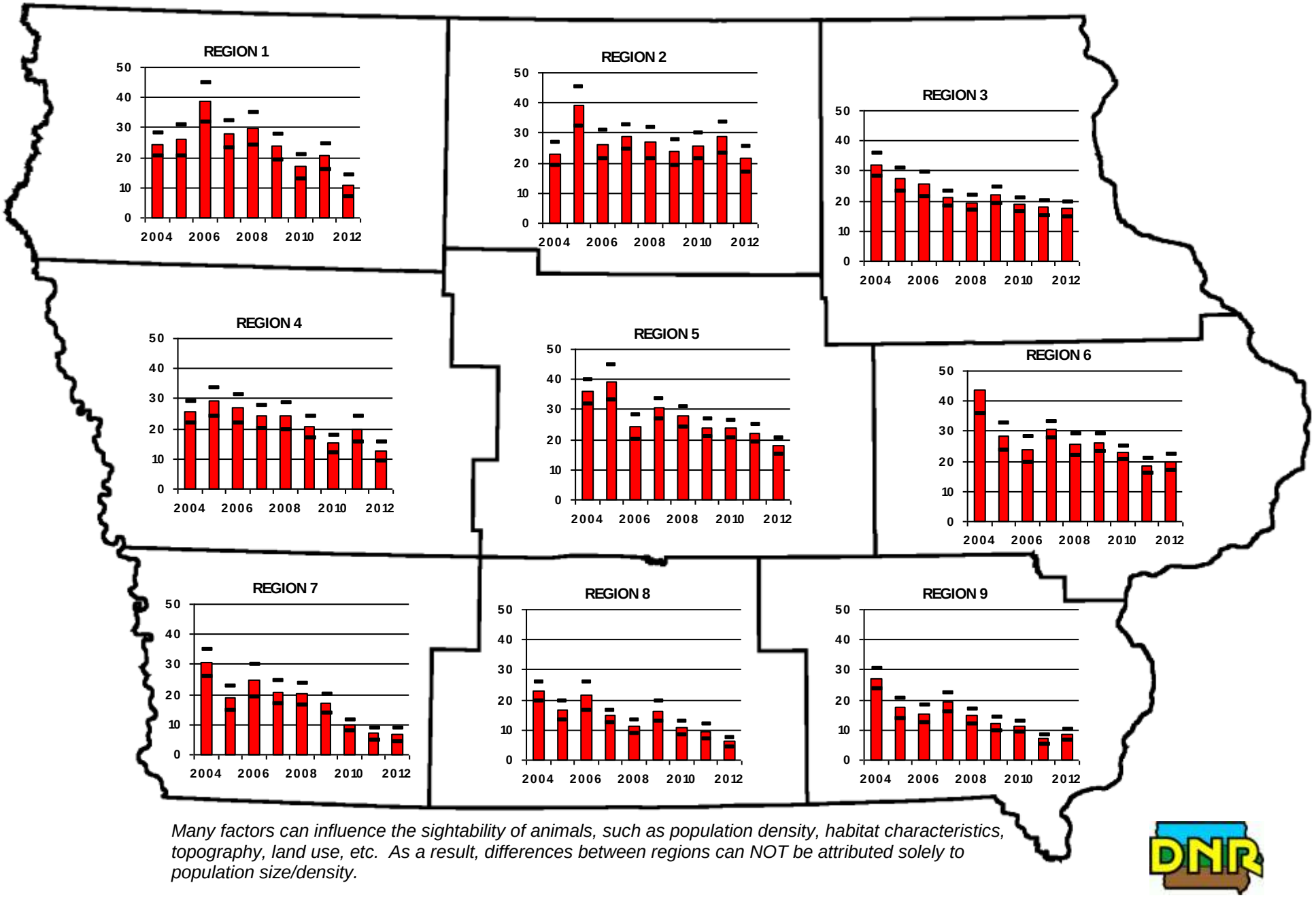
Bowhunter Observation Survey, Iowa Dept. of Natural Resources



Many factors can influence the sightability of animals, such as population density, habitat characteristics, topography, land use, etc. As a result, differences between regions can NOT be attributed solely to population size/density.

House Cat Observations Per 1,000 Hours Hunted

Bowhunter Observation Survey, Iowa Dept. of Natural Resources



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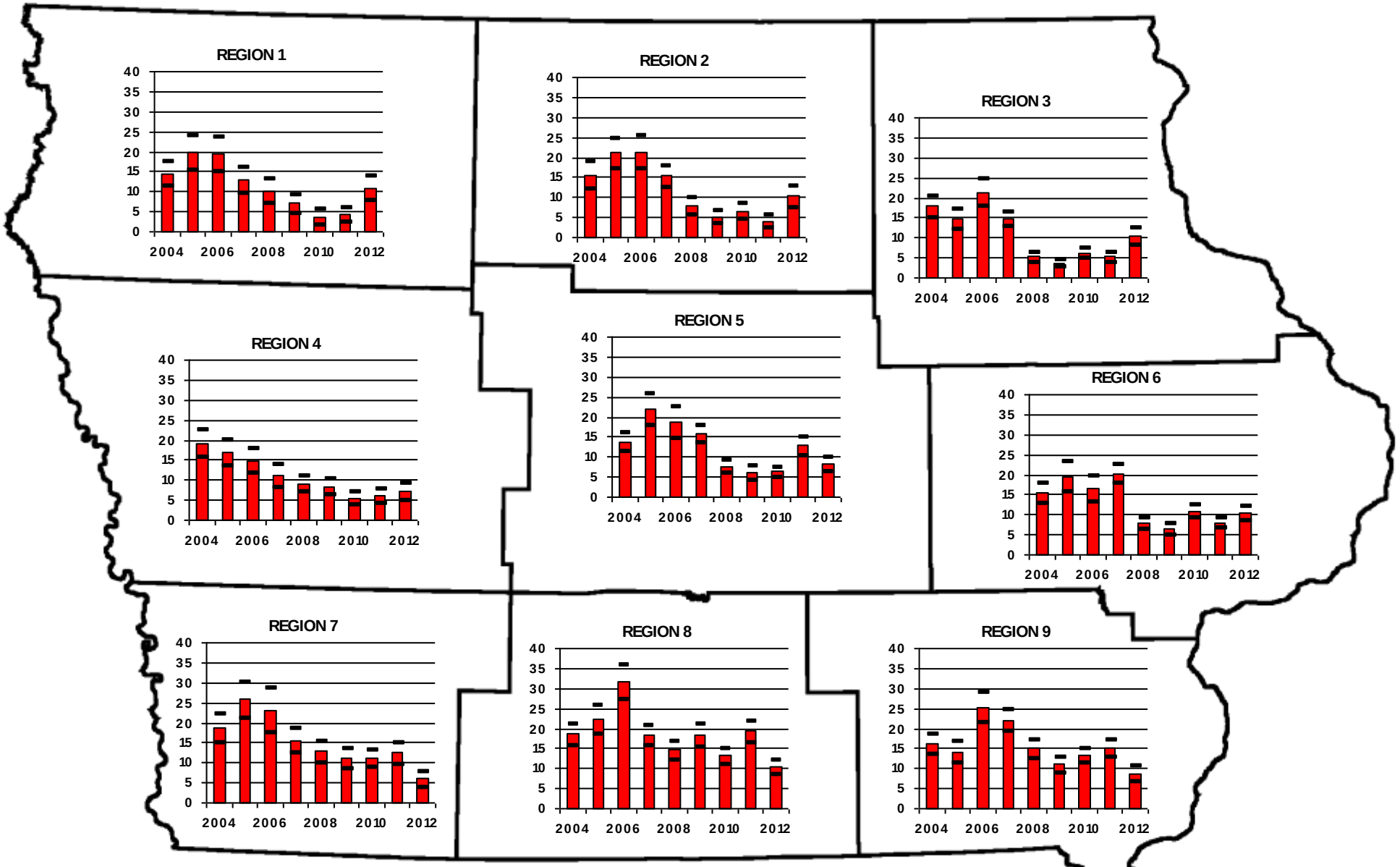
Opossum Observations Per 1,000 Hours Hunted

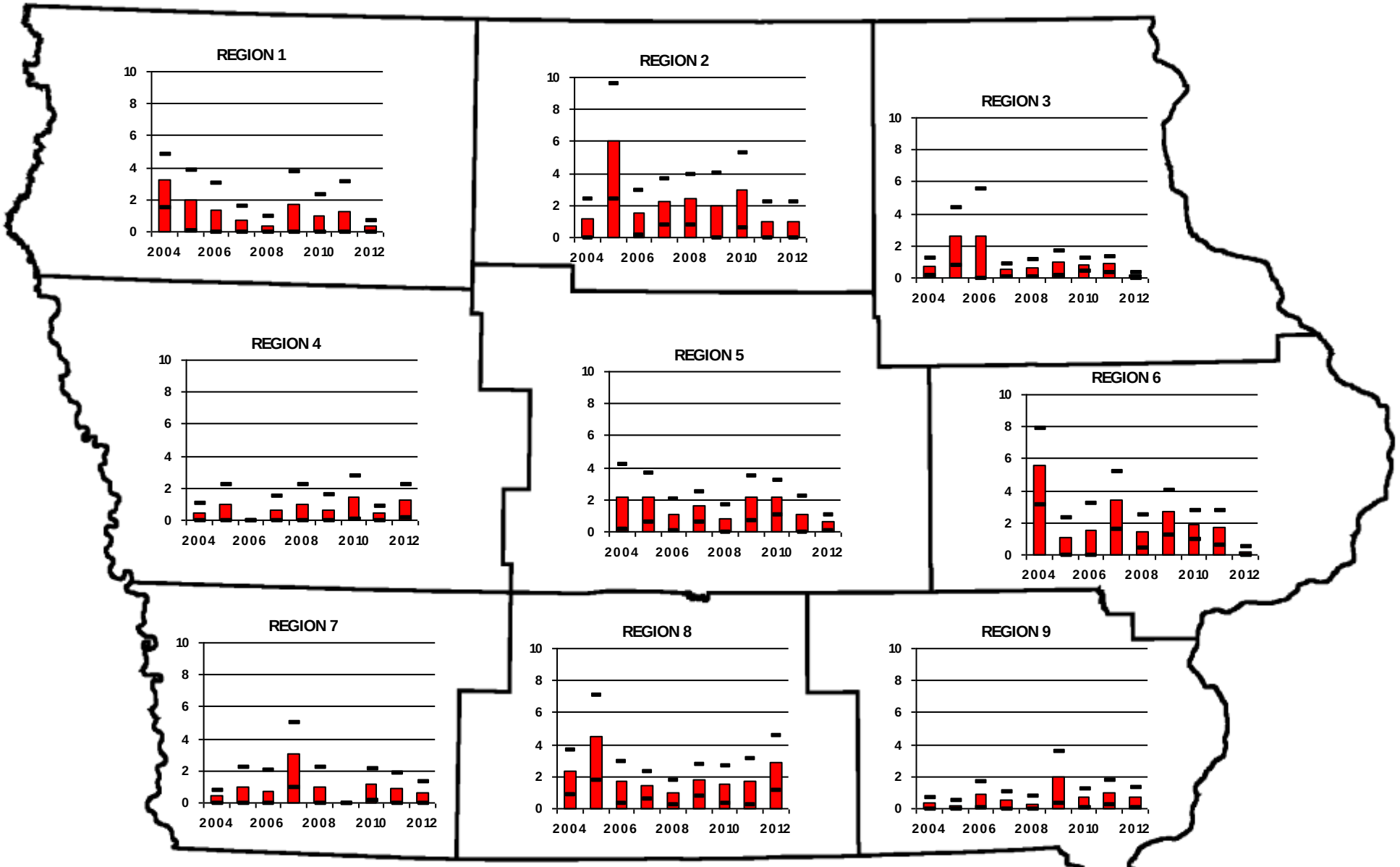
Bowhunter Observation Survey, Iowa Dept. of Natural Resources



Many factors can influence the sightability of animals, such as population density, habitat characteristics, topography, land use, etc. As a result, differences between regions can NOT be attributed solely to population size/density.

River Otter Observations Per 1,000 Hours Hunted

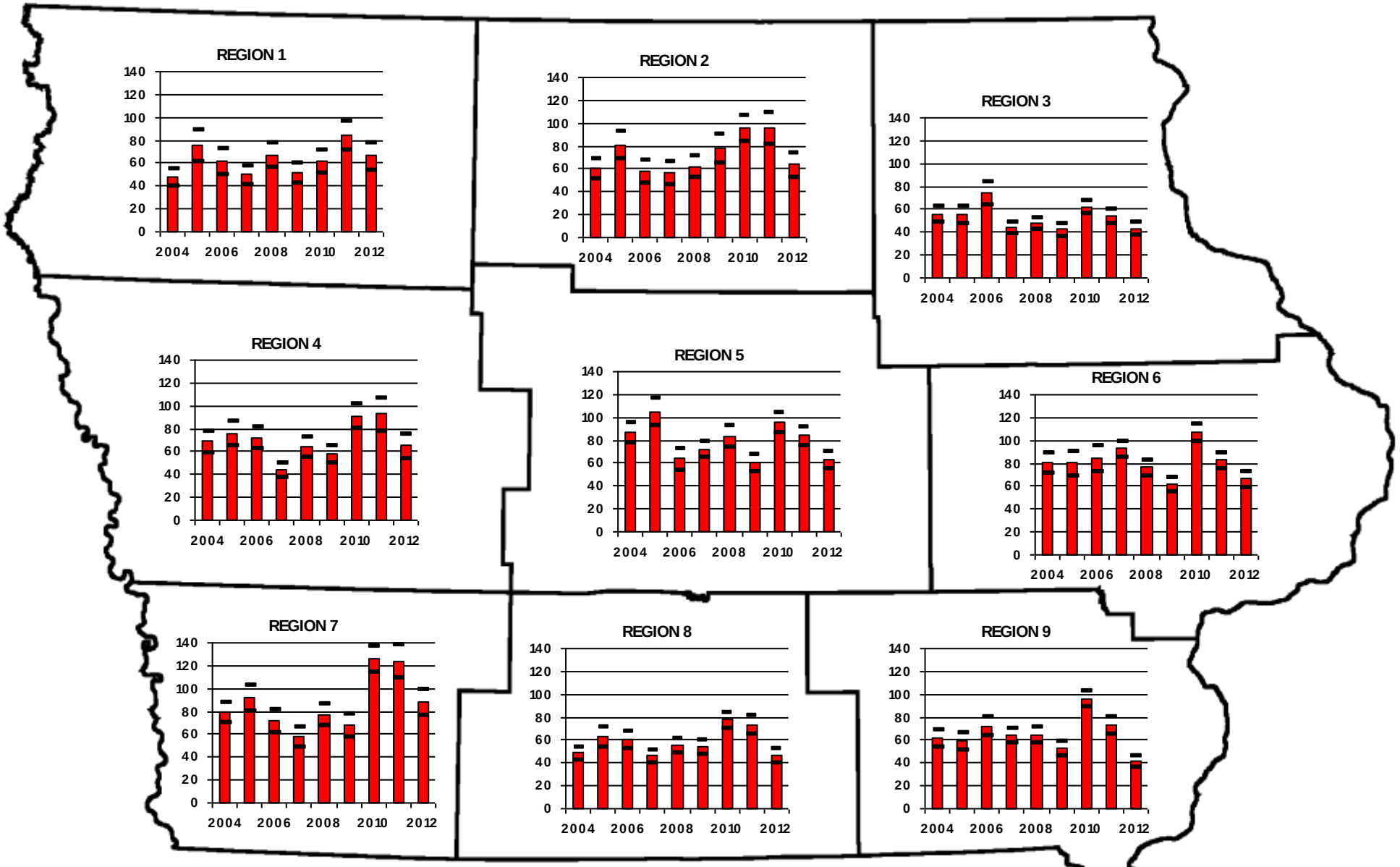
Bowhunter Observation Survey, Iowa Dept. of Natural Resources



Many factors can influence the sightability of animals, such as population density, habitat characteristics, topography, land use, etc. As a result, differences between regions can NOT be attributed solely to population size/density.

Raccoon Observations Per 1,000 Hours Hunted

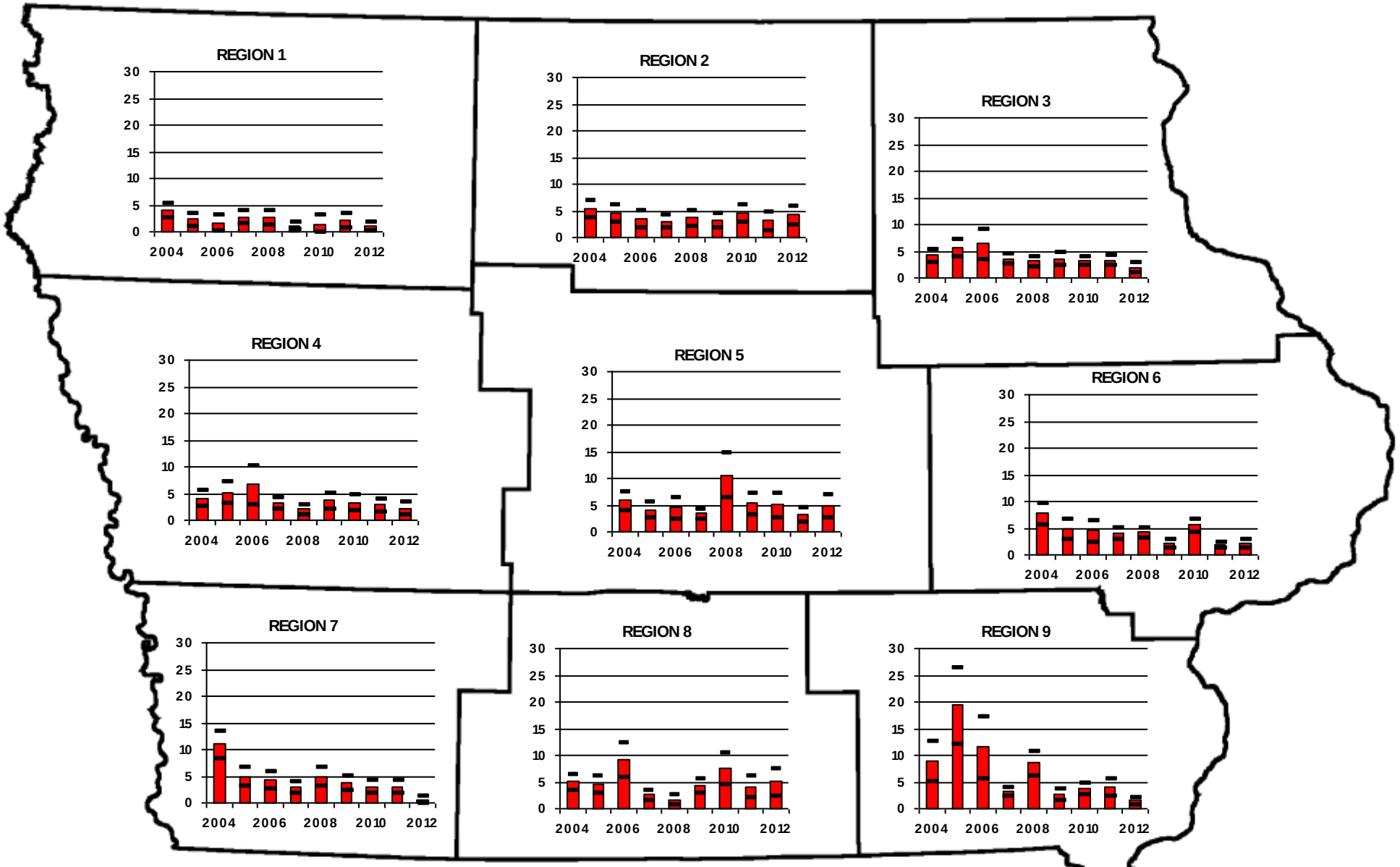
Bowhunter Observation Survey, Iowa Dept. of Natural Resources



Many factors can influence the sightability of animals, such as population density, habitat characteristics, topography, land use, etc. As a result, differences between regions can NOT be attributed solely to population size/density.

Red Fox Observations Per 1,000 Hours Hunted

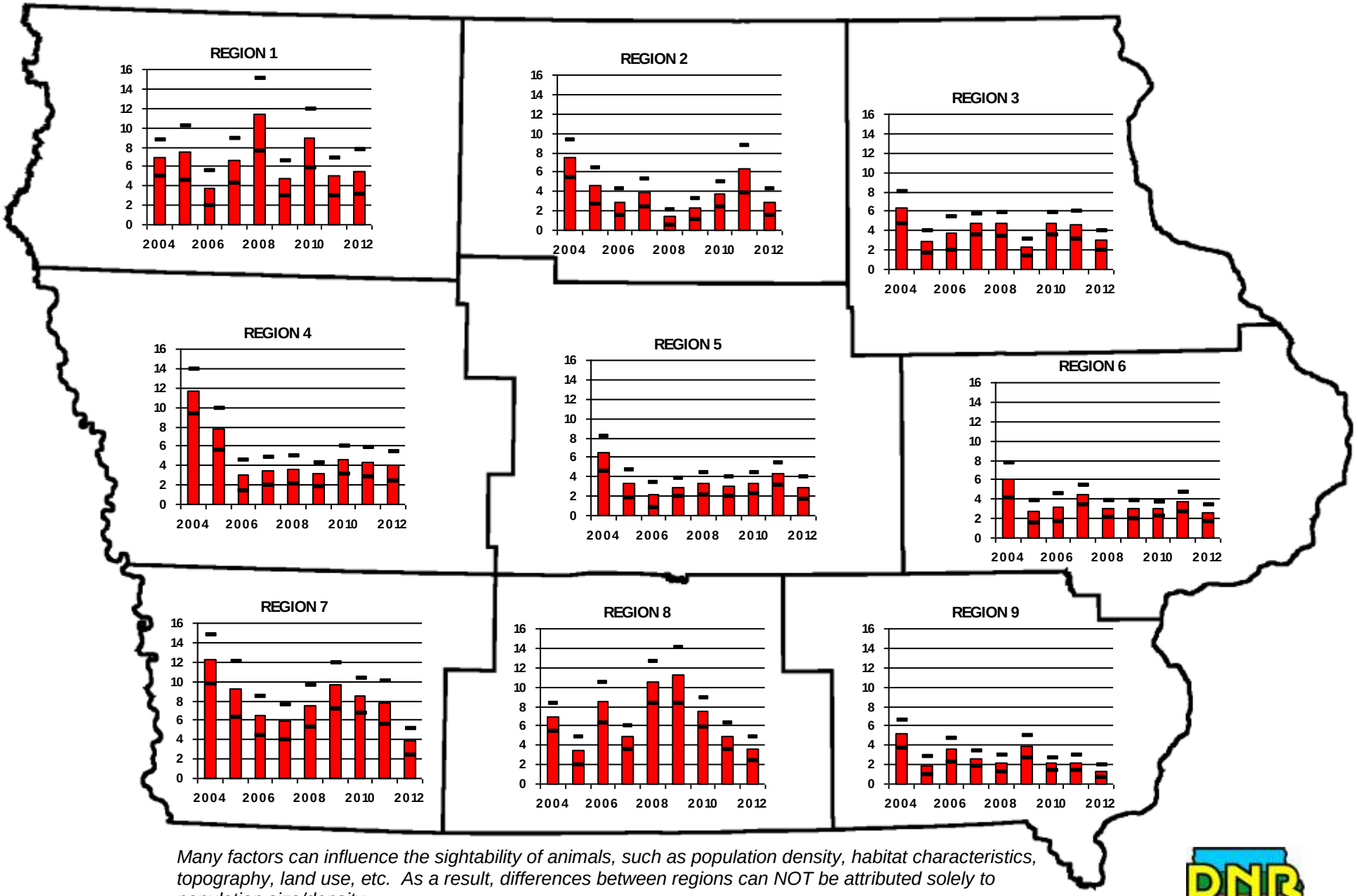
Bowhunter Observation Survey, Iowa Dept. of Natural Resources



Many factors can influence the sightability of animals, such as population density, habitat characteristics, topography, land use, etc. As a result, differences between regions can NOT be attributed solely to population size/density.

Striped Skunk Observations Per 1,000 Hours Hunted

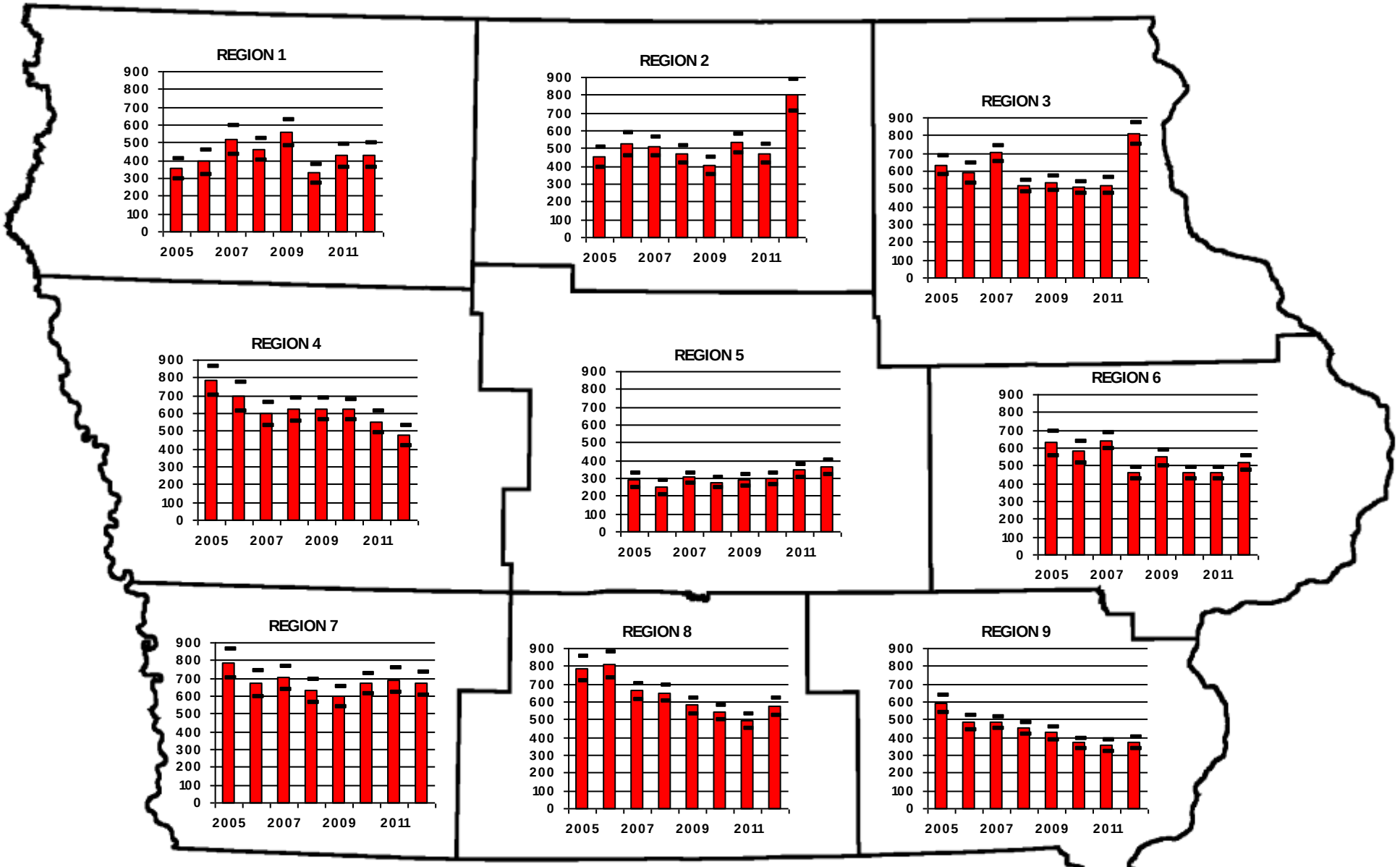
Bowhunter Observation Survey, Iowa Dept. of Natural Resources



Many factors can influence the sightability of animals, such as population density, habitat characteristics, topography, land use, etc. As a result, differences between regions can NOT be attributed solely to population size/density.

Wild Turkey Observations Per 1,000 Hours Hunted

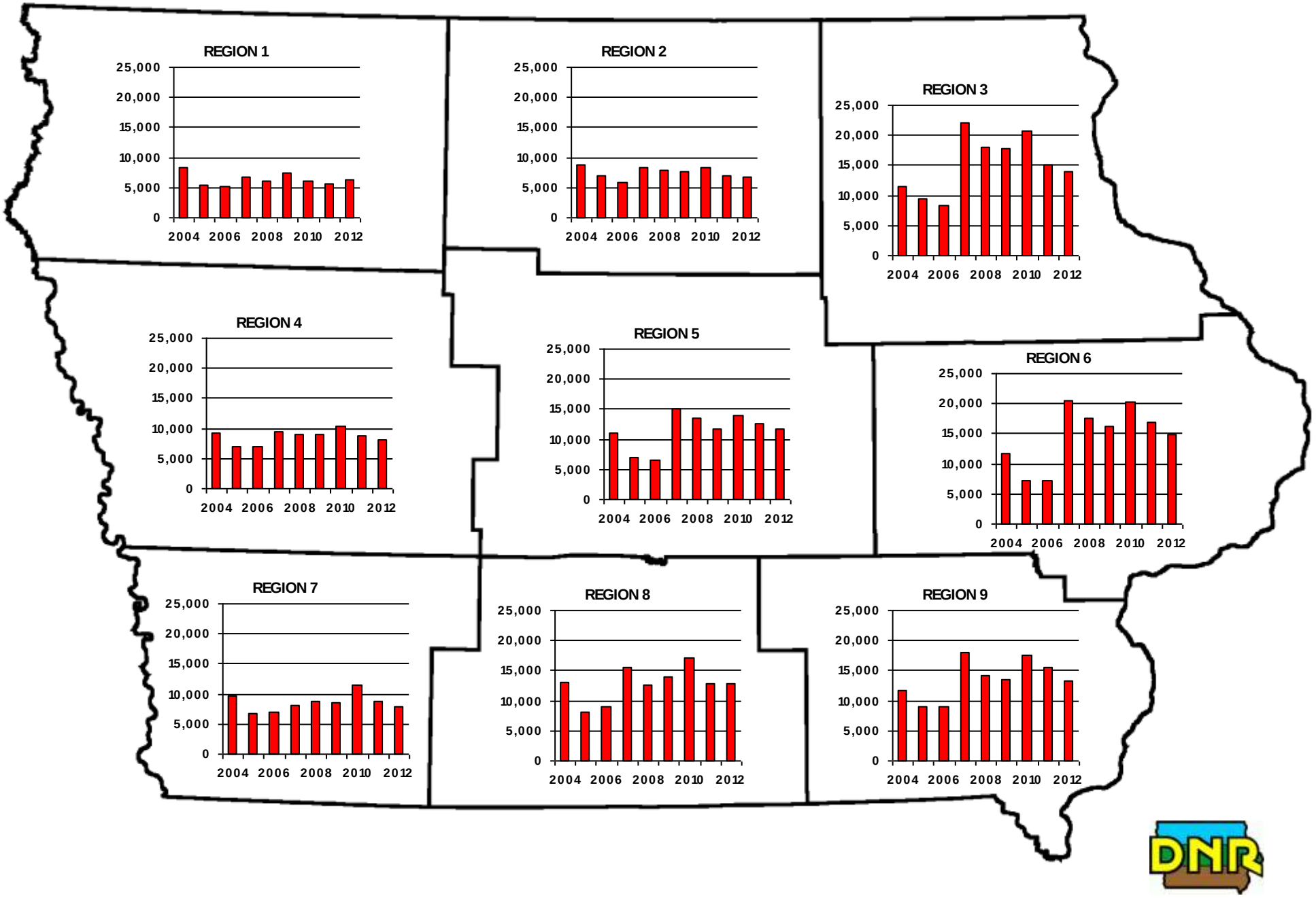
Bowhunter Observation Survey, Iowa Dept. of Natural Resources



Many factors can influence the sightability of animals, such as population density, habitat characteristics, topography, land use, etc. As a result, differences between regions can NOT be attributed solely to population size/density.

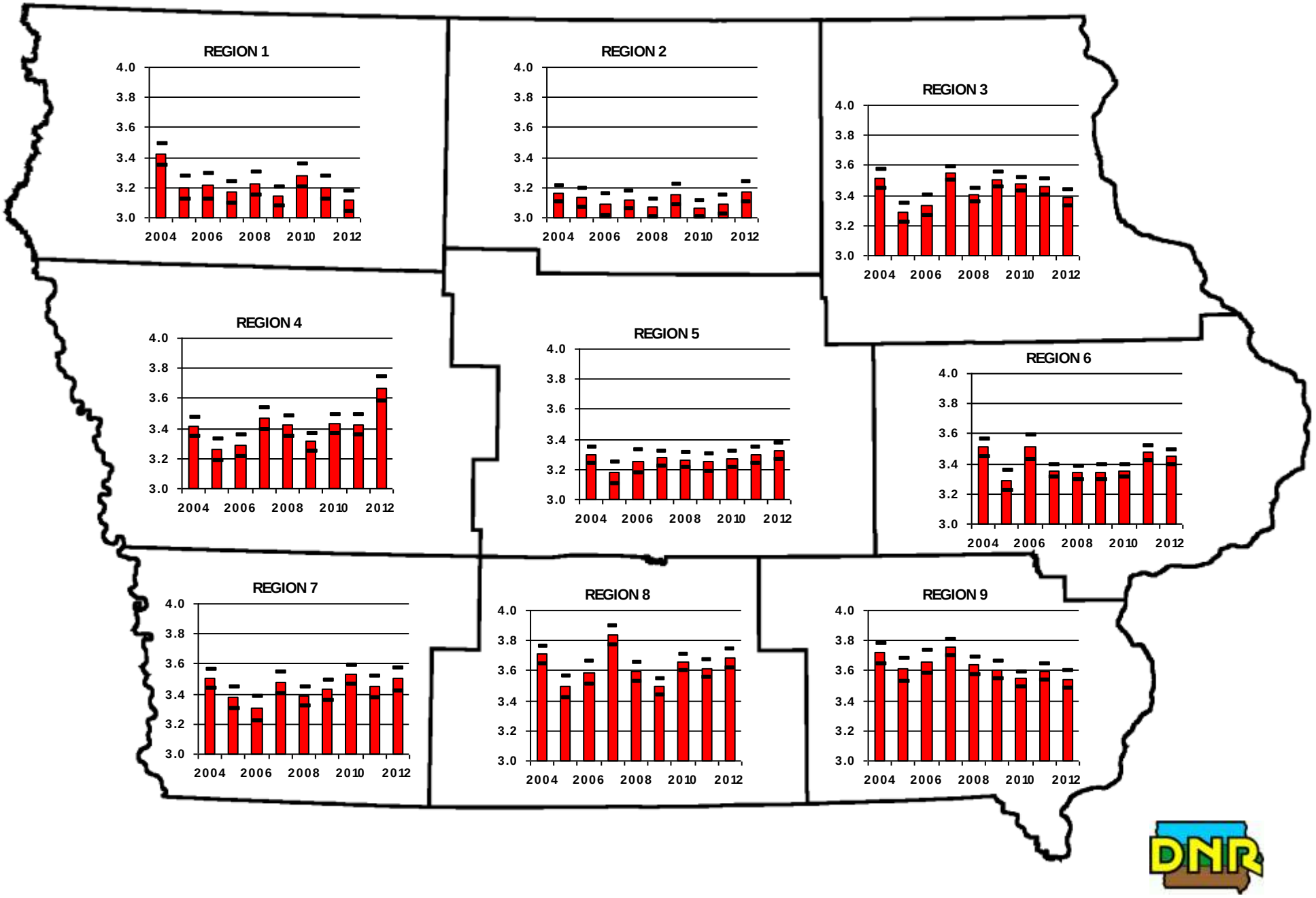
Hours Hunted by Survey Participants

Bowhunter Observation Survey, Iowa Dept. of Natural Resources



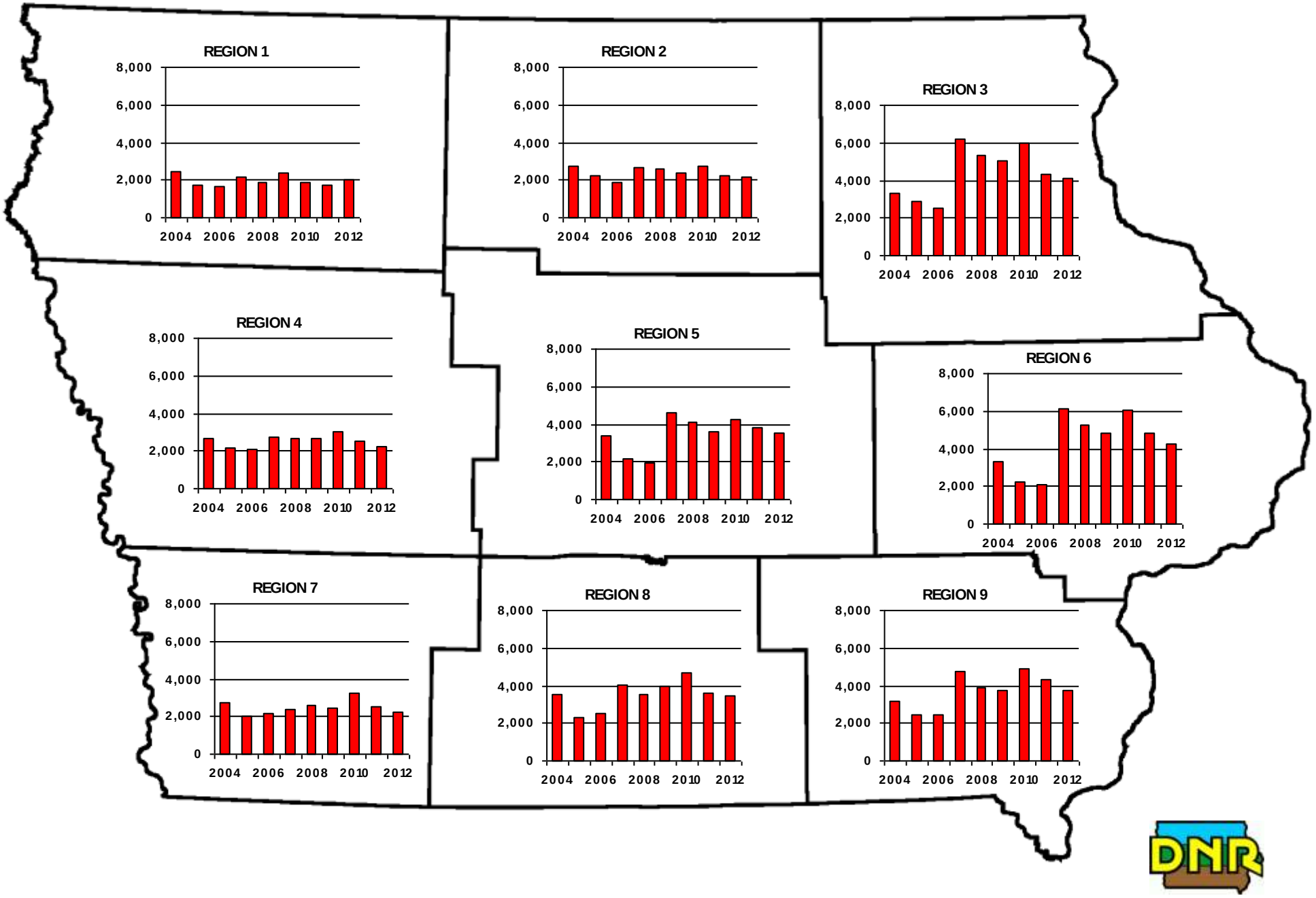
Average Hours Hunted/Bowhunting Trip

Bowhunter Observation Survey, Iowa Dept. of Natural Resources



Bowhunting Trips by Survey Participants

Bowhunter Observation Survey, Iowa Dept. of Natural Resources



RUFFED GROUSE

HISTORICAL PERSPECTIVE

History: Ruffed grouse (*Bonasa umbellus*) were found nearly statewide in Iowa during the mid-19th century but deforestation and grazing of timber caused a dramatic decline of grouse populations (Klonglan and Hlavka 1969). Ruffed grouse had disappeared from southwest Iowa by 1900 and further population declines occurred in the south and east-central portions prior to the 1920's.

Grouse were restricted to their present range in the northeast 6 counties by 1930 (Fig. 2.9). Between 1930 and the early 1960's there was an increase in available and potential grouse habitat in southern and eastern Iowa primarily from secondary succession of private forests and the acquisition and removal of state lands from grazing.

HUNTING SEASONS

Although limited in distribution the existing populations in northeast Iowa have persisted and provided limited hunting opportunity. The first modern-day hunting season was in 1968, after a 44-year continuously closed season. Current hunting season format was established in 1981 and has varied only to assure the season opens on a Saturday.

FALL RUFFED GROUSE SURVEY

Estimates of ruffed grouse harvest and hunter effort were historically obtained from the annual Small Game Hunter Survey. The sampling strategy associated with this survey was primarily designed to estimate the annual harvest and hunter effort for species that have somewhat large population distributions (i.e., distributed across all or most of Iowa). However, ruffed grouse have a distribution that is primarily limited to northeast Iowa, and the sampling strategy was less than optimal for estimating ruffed grouse harvest and hunter effort. In addition, ruffed grouse harvest is limited to the northeast Iowa grouse hunting zone while the harvest of all other small game is allowed statewide.

In 2008, ruffed grouse were removed from the small game hunter survey and the Iowa Ruffed Grouse Survey was initiated. This survey has two primary goals: (1) to obtain an estimated rate that grouse are encountered by squirrel, turkey, and deer hunters, and (2) obtain an estimate of the number of grouse flushed, grouse harvested, and days hunted by ruffed grouse hunters. The sampling frame for the Iowa Ruffed Grouse Survey consists of all individuals who obtained a regular hunting license and reside in one of 14 counties that coincide with the grouse hunting zone in northeast Iowa. The limited sampling frame suggests that any estimates of grouse harvest and hunter effort should be considered minimum estimates because individuals residing outside of the 14-county area may also hunt and harvest grouse in the grouse hunting zone. The sampling design for this survey uses stratified random sampling whereby individuals are selected at random from each of 14 strata (i.e., counties) to help ensure the sample is distributed across the entire grouse hunting zone. The survey consists of two mailings: postcards are initially mailed to 3,500 individuals in mid-February and a second follow-up mailing is sent to non-respondents in late March.

Responses are returned via prepaid business reply mail to the Boone Wildlife Research Station. Postcards are electronically imaged and data are entered using OCR, ICR, and OMR technology.

Data are verified by DNR personnel and validated through the use of predetermined validation rules. Further accuracy checks are performed by routines written in SAS programming language. Missing values are inputted using the Hot Deck procedure of PRECARP, and estimates are calculated using SAS PROC SURVEYMEANS and the SAS SMSUB macro.

2012-2013 Survey: Hunters surveyed in NE Iowa (Allamakee, Blackhawk, Bremer, Buchanan, Chickasaw, Clayton, Delaware, Dubuque, Fayette, Howard, Jackson, Jones, Linn, and Winneshiek) reported observing an average of 13.8 grouse per 1000 days of hunting, which was higher than the previous year of 7.0 grouse per 1000 days (Table 2.13). On average, it took hunters 72.5 days to detect a grouse, was lower than the previous year of 141.4 days. An estimated 503 ruffed grouse hunters spent an estimated total of 2,786 days hunting for grouse in 2012-13. The previous year, 445 grouse hunters spent 6,143 total days hunting grouse. For the 2012-13 season, an estimated 373 ruffed grouse were flushed by grouse hunters, which was higher than the 523 estimated the previous year (but statistically significant). For the 2012-13 season, zero ruffed grouse were reported to have been harvested, which was the same in previous year (Table 2.14). Low sample size of the grouse surveys make reliable harvest estimates difficult to determine, since very few hunters actively seek ruffed grouse as game in Iowa.

Previous ruffed grouse hunters and harvested grouse were estimated with the small-game survey from 1969 – 2010 (Table 2.15). During the last three years of the survey, estimates of harvested grouse and grouse hunters were minimal, since the small-game survey was conducted across the entire state. The new ruffed grouse surveys are focused in NE Iowa (Iowa's ruffed grouse population range), thus increasing the potential to survey grouse hunters and grouse detected by general hunters.

LITERATURE CITED

Klonglan, E. D., and G. Hlavka. 1969. Recent status of ruffed grouse in Iowa. Proc. Iowa Acad. Sci. 76:231-240.

Figure 9.1 Ruffed grouse distribution in Iowa, 1992.